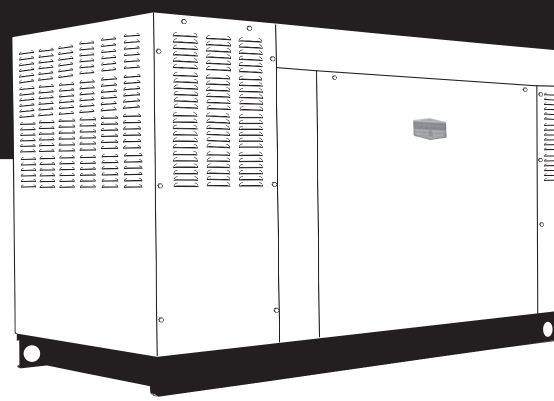
Serial Number

2.4L
35kW
Model: 005259-0

STANDBY GENERATOR
OWNER'S MANUAL



A new standard of reliability

GUARDIAN® Elite
by Generac Power Systems, Inc.

— ⚠ CAUTION ⚠ —

ONLY QUALIFIED ELECTRICIANS OR CONTRACTORS SHOULD ATTEMPT INSTALLATION!

This manual should remain with the unit.

Part No. 0G0238

Cover040 Rev. 0 02/06

Standby Generator Sets
Table of Contents

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SAVE THESE INSTRUCTIONS – The manufacturer suggests that these rules for safe operation be copied and posted in potential hazard areas. Safety should be stressed to all operators, potential operators, and service and repair technicians for this equipment.

WARNING:

The engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

WARNING:

This product contains or emits chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Study these SAFETY RULES carefully before installing, operating or servicing this equipment. Become familiar with this Owner's Manual and with the unit. The generator can operate safely, efficiently and reliably only if it is properly installed, operated and maintained. Many accidents are caused by failing to follow simple and fundamental rules or precautions.

The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The warnings in this manual, and on tags and decals affixed to the unit are, therefore, not all inclusive. If a procedure, work method or operating technique is used that the manufacturer does not specifically recommend, ensure that it is safe for others. Also make sure the procedure, work method or operating technique utilized does not render the generator unsafe.

DANGER

Despite the safe design of this generator, operating this equipment imprudently, neglecting its maintenance or being careless can cause possible injury or death. Permit only responsible and capable persons to install, operate or maintain this equipment.

Potentially lethal voltages are generated by these machines. Ensure all steps are taken to render the machine safe before attempting to work on the generator.

Parts of the generator are rotating and/or hot during operation. Exercise care near running generators.

GENERAL HAZARDS

- For safety reasons, the manufacturer recommends that this equipment be installed, serviced and repaired by an Authorized Service Dealer or other competent, qualified electrician or installation technician who is familiar with applicable codes, standards and regulations. The operator also must comply with all such codes, standards and regulations.
- Installation, operation, servicing and repair of this (and related) equipment must always comply with applicable codes, standards, laws and regulations. Adhere strictly to local, state and national electrical and building codes. Comply with regulations the Occupational Safety and Health Administration (OSHA) has established. Also, ensure that the generator is installed, operated and serviced in accordance with the manufacturer's instructions and recommendations. Following installation, do nothing that might render the unit unsafe or in noncompliance with the aforementioned codes, standards, laws and regulations.
- The engine exhaust fumes contain carbon monoxide gas, which can be DEADLY. This dangerous gas, if breathed in sufficient concentrations, can cause unconsciousness or even death. For that reason, adequate ventilation must be provided. Exhaust gases must be piped safely away from any building or enclosure that houses the generator to an area where people, animals, etc., will not be harmed. This exhaust system must be installed properly, in strict compliance with applicable codes and standards.
- Keep hands, feet, clothing, etc., away from drive belts, fans, and other moving or hot parts. Never remove any drive belt or fan guard while the unit is operating.
- Adequate, unobstructed flow of cooling and ventilating air is critical in any room or building housing the generator to prevent buildup of explosive gases and to ensure correct generator operation. Do not alter the installation or permit even partial blockage of ventilation provisions, as this can seriously affect safe operation of the generator.
- Keep the area around the generator clean and uncluttered. Remove any materials that could become hazardous.
- When working on this equipment, remain alert at all times. Never work on the equipment when physically or mentally fatigued.
- Inspect the generator regularly, and promptly repair or replace all worn, damaged or defective parts using only factory-approved parts.

- Before performing any maintenance on the generator, disconnect its battery cables to prevent accidental start-up. Disconnect the cable from the battery post indicated by a NEGATIVE, NEG or (–) first. Reconnect that cable last.
- Never use the generator or any of its parts as a step. Stepping on the unit can stress and break parts, and may result in dangerous operating conditions from leaking exhaust gases, fuel leakage, oil leakage, etc.

ELECTRICAL HAZARDS

- All generators covered by this manual produce dangerous electrical voltages and can cause fatal electrical shock. Utility power delivers extremely high and dangerous voltages to the transfer switch as well as the standby generator. Avoid contact with bare wires, terminals, connections, etc., on the generator as well as the transfer switch, if applicable. Ensure all appropriate covers, guards and barriers are in place before operating the generator. If work must be done around an operating unit, stand on an insulated, dry surface to reduce shock hazard.
- Do not handle any kind of electrical device while standing in water, while barefoot, or while hands or feet are wet. DANGEROUS ELECTRICAL SHOCK MAY RESULT.
- If personnel must stand on metal or concrete while installing, operating, servicing, adjusting or repairing this equipment, place insulative mats over a dry wooden platform. Work on the equipment only while standing on such insulative mats.
- The National Electrical Code (NEC) requires the frame and external electrically conductive parts of the generator to be connected to an approved earth ground. This grounding will help prevent dangerous electrical shock that might be caused by a ground fault condition in the generator set or by static electricity. Never disconnect the ground wire.
- Wire gauge sizes of electrical wiring, cables and cord sets must be adequate to handle the maximum electrical current (ampacity) to which they will be subjected.
- Before installing or servicing this (and related) equipment, make sure that all power voltage supplies are positively turned off at their source. Failure to do so will result in hazardous and possibly fatal electrical shock.
- Connecting this unit to an electrical system normally supplied by an electric utility shall be by means of a transfer switch so as to isolate the generator electric system from the electric utility distribution system when the generator is operating. Failure to isolate the two electric system power sources from each other by such means will result in damage to the generator and may also result in injury or death to utility power workers due to backfeed of electrical energy.
- Generators installed with an automatic transfer switch will crank and start automatically when normal (utility) source voltage is removed or is below an acceptable preset level. To prevent such automatic start-up and possible injury to personnel, disable the generator's automatic start circuit (battery cables, etc.) before working on or around the unit. Then, place a "Do Not Operate" tag on the generator control panel and on the transfer switch.
- In case of accident caused by electric shock, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. AVOID DIRECT CONTACT WITH THE VICTIM. Use a nonconducting implement, such as a dry rope or board, to free the victim from the live conductor. If the victim is unconscious, apply first aid and get immediate medical help.
- Never wear jewelry when working on this equipment. Jewelry can conduct electricity resulting in electric shock, or may get caught in moving components causing injury.

FIRE HAZARDS

- Keep a fire extinguisher near the generator at all times. Do NOT use any carbon tetra-chloride type extinguisher. Its fumes are toxic, and the liquid can deteriorate wiring insulation. Keep the extinguisher properly charged and be familiar with its use. If there are any questions pertaining to fire extinguishers, consult the local fire department.

EXPLOSION HAZARDS

- Properly ventilate any room or building housing the generator to prevent build-up of explosive gas.
- Do not smoke around the generator. Wipe up any fuel or oil spills immediately. Ensure that no combustible materials are left in the generator compartment, or on or near the generator, as FIRE or EXPLOSION may result. Keep the area surrounding the generator clean and free from debris.
- These generator sets may operate using one of several types of fuels. All fuel types are potentially FLAMMABLE and/or EXPLOSIVE and should be handled with care. Comply with all laws regulating the storage and handling of fuels. Inspect the unit's fuel system frequently and correct any leaks immediately. Fuel supply lines must be properly installed, purged and leak tested according to applicable fuel-gas codes before placing this equipment into service.
- Diesel fuels are highly FLAMMABLE. Gaseous fluids such as natural gas and liquid propane (LP) gas are extremely EXPLOSIVE. Natural gas is lighter than air, and LP gas is heavier than air; install leak detectors accordingly.

INTRODUCTION

Thank you for purchasing this model of the standby generator set product line.

Every effort was expended to make sure that the information and instructions in this manual were both accurate and current at the time the manual was written. However, the manufacturer reserves the right to change, alter or otherwise improve this product(s) at any time without prior notice.

◆ READ THIS MANUAL THOROUGHLY

If any portion of this manual is not understood, contact the nearest Authorized Service Dealer for starting, operating and servicing procedures.

Throughout this publication, and on tags and decals affixed to the generator, DANGER, WARNING, CAUTION and NOTE blocks are used to alert personnel to special instructions about a particular service or operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully. Their definitions are as follows:

DANGER

After this heading, read instructions that, if not strictly complied with, will result in personal injury or property damage.

WARNING

After this heading, read instructions that, if not strictly complied with, may result in personal injury or property damage.

CAUTION

After this heading, read instructions that, if not strictly complied with, could result in damage to equipment and/or property.

NOTE:

After this heading, read explanatory statements that require special emphasis.

These safety warnings cannot eliminate the hazards that they indicate. Common sense and strict compliance with the special instructions while performing the service are essential to preventing accidents.

Four commonly used safety symbols accompany the DANGER, WARNING and CAUTION blocks. The type of information each indicates is as follows:

This symbol points out important safety information that, if not followed, could endanger personal safety and/or property of others.

This symbol points out potential explosion hazard.

This symbol points out potential fire hazard.

This symbol points out potential electrical shock hazard.

The operator is responsible for proper and safe use of the equipment. The manufacturer strongly recommends that the operator read this Owner's Manual and thoroughly understand all instructions before using this equipment. The manufacturer also strongly recommends instructing other users to properly start and operate the unit. This prepares them if they need to operate the equipment in an emergency.

◆ OPERATION AND MAINTENANCE

It is the operator's responsibility to perform all safety checks, to make sure that all maintenance for safe operation is performed promptly, and to have the equipment checked periodically by an Authorized Service Dealer. Normal maintenance service and replacement of parts are the responsibility of the owner/operator and, as such, are not considered defects in materials or workmanship within the terms of the warranty. Individual operating habits and usage contribute to the need for maintenance service.

Proper maintenance and care of the generator ensure a minimum number of problems and keep operating expenses at a minimum. See an Authorized Service Dealer for service aids and accessories.

Operating instructions presented in this manual assume that the standby electric system has been installed by an Authorized Service Dealer or other competent, qualified contractor. Installation of this equipment is not a “do-it-yourself” project.

◆ HOW TO OBTAIN SERVICE

When the generator requires servicing or repairs, simply contact an Authorized Service Dealer for assistance. Service technicians are factory-trained and are capable of handling all service needs.

When contacting an Authorized Service Dealer or the factory about parts and service, always supply the complete model number of the unit as given on the front cover of this manual or on the DATA LABEL affixed to the unit.

AUTHORIZED SERVICE DEALER LOCATION

To locate the nearest AUTHORIZED SERVICE DEALER, please call this number:

1-800-333-1322

or locate us on the web at:

www.generac.com

IDENTIFICATION RECORD

◆ DATA LABEL

Every generator set has a DATA LABEL that contains important information pertinent to the generator. The data label, which can be found attached to the generator's lower connection box, lists the unit's serial number and its rated voltage, amps, wattage capacity, phase, frequency, rpm, power factor, etc.

NOTE:

For actual information related to this particular model, please refer to the Manual Drawing Listing located at the end of this manual, or to the data label affixed to the unit.

✦ Generator Model and Serial Number

This number is the key to numerous engineering and manufacturing details pertaining to your unit. Always supply this number when requesting service, ordering parts or seeking information.

Data Label

GENERATOR SET DATA — MADE IN USA

MODEL [ ] SERIAL [ ]

RATED KW [ ] RATED KVA [ ] PHASE [ ]

RATED VOLTAGE [ ] RATED AMPS [ ]

POWER FACTOR [ ] HERTZ [ ] ALT RPM [ ]

ENGINE RPM [ ] PRODUCTION DATE [ ]

ALTERNATOR SUBTRANSIENT REACTANCE [ ]

ALTERNATOR TRANSIENT REACTANCE [ ]

CLASS [ ] ROTOR [ ] STATOR WINDING INSULATION AT 25°C AMBIENT

GENERAC POWER SYSTEMS, INC.
WAUKESHA, WI

EQUIPMENT DESCRIPTION

This equipment is a revolving field, alternating current generator set. It is powered by a gaseous fueled engine operating at 1800 rpm for 4-pole direct drive units, 3600 rpm for 2-pole direct drive units and 2300 - 3000 rpm for quiet drive gear units. See the Specifications section for exact numbers. The unit comes complete with a sound attenuated enclosure, internally mounted muffler, control console, mainline circuit breaker, battery charger, and protective alarms as explained in the following paragraph.

All AC connections, including the power leads from the alternator, 120 volt battery charger input and control connections to the transfer switch are available in the main connection box.

The generator incorporates the following generator features:

- Rotor and Stator insulation is Class H rated as defined by NEMA MG1-32.6, NEMA MG1-1.66. The generator is self ventilated and drip-proof constructed.
- The voltage waveform deviation, total harmonic content of the AC waveform and telephone influence factor have been evaluated and are acceptable according to NEMA MG1-32.

ENGINE OIL RECOMMENDATIONS

The unit has been filled with 15W-40 engine oil at the factory. Use a high-quality detergent oil classified "For Service CC, SD, SE, SF." Detergent oils keep the engine cleaner and reduce carbon deposits. Use oil having the following SAE viscosity rating, based on the ambient temperature range anticipated before the next oil change:

Temperature	Oil Grade (Recommended)
Above 80° F (27° C)	SAE 30W or 15W-40
32° to 80° F (0° to 27° C)	SAE 20W-20 or 15W-40
Below 32° F (0° C)	See Note

CAUTION

Any attempt to crank or start the engine before it has been properly serviced with the recommended oil may result in an engine failure.

NOTE:

For temperatures below 32° F, it is strongly recommended to use the optional Cold Weather Start Kit (part number listed in the Specification Section). The oil grade for temperatures below 32° F is 5W-30 synthetic oil.

COOLANT RECOMMENDATIONS

Use a mixture of half low silicate ethylene glycol base anti-freeze and deionized water. Cooling system capacity is listed in the specifications. Use only deionized water and only low silicate anti-freeze. If desired, add a high quality rust inhibitor to the recommended coolant mixture. When adding coolant, always add the recommended 50-50 mixture.

CAUTION

Do not use any chromate base rust inhibitor with ethylene glycol base anti-freeze or chromium hydroxide ("green slime") forms and will cause overheating. Engines that have been operated with a chromate base rust inhibitor must be chemically cleaned before adding ethylene glycol base anti-freeze. Using any high silicate anti-freeze boosters or additives will also cause overheating. The manufacturer also recommends that any soluble oil inhibitor is NOT used for this equipment.

DANGER

Do not remove the radiator pressure cap while the engine is hot or serious burns from boiling liquid or steam could result.

Ethylene glycol base antifreeze is poisonous. Do not use mouth to siphon coolant from the radiator, recovery bottle or any container. Wash hands thoroughly after handling. Never store used antifreeze in an open container because animals are attracted to the smell and taste of antifreeze even though it is poisonous to them.

ENGINE PROTECTIVE DEVICES

The standby generator may be required to operate for long periods of time without an operator on hand to monitor such engine conditions as coolant temperature, oil pressure or rpm. For that reason, the engine has several devices designed to protect it against potentially damaging conditions by automatically shutting down the unit when the oil pressure is too low, the coolant temperature is too high, the coolant level is too low, or the engine is running too fast.

NOTE:

Engine protective switches and sensors are mentioned here for the reader's convenience. Also refer to the applicable control panel manual for additional automatic engine shutdown information.

◆ HIGH COOLANT TEMPERATURE SWITCH

This switches contacts close if the temperature should exceed approximately 140° C (284° F), initiating an engine shutdown. The generator will automatically restart and the LED will reset once the temperature has returned to a safe operating level.

◆ LOW COOLANT LEVEL SENSOR

Should the engine coolant level drop below the level of the high coolant temperature switch, it is possible for the engine to overheat without automatic shutdown. To prevent such overheating, the engine has a low coolant level sensor. If the level of engine coolant drops below the level of the low coolant level sensor, the engine automatically shuts down.

◆ LOW OIL PRESSURE SWITCH

This switch has normally closed contacts that are held open by engine oil pressure during cranking and operating. Should oil pressure drop below the 8 psi range, switch contacts close, and the engine shuts down. The unit should not be restarted until oil is added, and the AUTO/OFF/MANUAL switch must be turned to OFF and then back to AUTO.

◆ OVERCRANK SHUTDOWN

After a prespecified duration of cranking, this function ends the cranking if the engine has failed to start. The overcrank LED will turn ON. Turn OFF the AUTO/OFF/MANUAL switch, then turn switch back to AUTO to reset the generator control board.

NOTE:

If the fault is not corrected, the overcrank feature will continue to activate.

Approximate Crank Cycle Times

- 15 seconds ON
- 7 seconds OFF
- 7 seconds ON
- 7 seconds OFF
- Repeat for 45 seconds
  Approximately 90 seconds total.

◆ OVERSPEED SHUTDOWN

A speed circuit controls engine cranking, start-up, operation and shutdown. Engine speed signals are delivered to the circuit board whenever the unit is running. Should the engine overspeed above a safe, preset value, the circuit board initiates an automatic engine shutdown. Contact the nearest Authorized Dealer if this failure occurs.

◆ RPM SENSOR LOSS SHUTDOWN

If the speed signal to the control panel is lost, engine shutdown will occur.

◆ DC FUSE

This fuse is located inside of the control panel. It protects the panel wiring and components from damaging overload. **Always remove this fuse before commencing work on the generator.** The unit will not start or crank if the fuse is blown. Replace the fuse with one of the same size, type, and rating. (See the exploded views and parts lists at the end of this manual for replacement part number.)

FUEL SYSTEM

◆ FUEL REQUIREMENTS

The standby generator may be equipped with one of the following fuel systems:

- Natural gas fuel system
- Propane vapor (PV) fuel system

The Manual Drawing Listing that is affixed to the unit includes the "Identification Code," which may be used to identify the type of fuel system installed on the unit.

Recommended fuels should have a Btu content of at least 1,000 Btus per cubic foot for natural gas; or at least 2,520 Btus per cubic foot for LP gas. Ask the fuel supplier for the Btu content of the fuel.

Required fuel pressure for **natural gas is 5 inches to 14 inches water column (0.18 to 0.5 psi); and for liquid propane, 5 inches to 14 inches of water column (0.18 to 0.5 psi).**

NOTE:

Any piping used to connect the generator to the fuel supply should be of adequate size to ensure the fuel pressure NEVER drops below five inches water column for natural gas or 5 inches water column for propane vapor for all load ranges.

NOTE:

It is the responsibility of the installer to make sure that only the correct recommended fuel is supplied to the generator fuel system. Thereafter, the owner/operator must make certain that only the proper fuel is supplied.

◆ NATURAL GAS FUEL SYSTEM

Natural gas is supplied in its vapor state. In most cases, the gas distribution company provides piping from the main gas distribution line to the standby generator site. The following information applies to natural gas fuel systems.

- Gas pressure in a building is usually regulated by national, state and local codes.
- To reduce gas pressure to a safe level before the gas enters a building, a primary regulator is needed. The natural gas supplier may or may not supply such a regulator.
- It is the responsibility of the gas supplier to make sure sufficient gas pressure is available to operate the primary regulator.
- Gas pressure at the inlet to the fuel shutoff solenoid should not exceed approximately 14 inches water column (0.5 psi). Optimum pressure at the fuel shutoff solenoid is 11 inches water column (0.4 psi).

◆ PROPANE VAPOR WITHDRAWAL FUEL SYSTEM

This type of system utilizes the vapors formed above the liquid fuel in the supply tank. Approximately 10 to 20 percent of the tank capacity is needed for fuel expansion from the liquid to the vapor state. The vapor withdrawal system is generally best suited for smaller engines that require less fuel. The installer should be aware of the following:

- The natural gas and LP gas systems are similar. However, the natural gas system delivers gas at a pressure of approximately five inches water column to the carburetor.
- When ambient temperatures are low and engine fuel consumption is high, the vapor withdrawal system may not function efficiently.
- Ambient temperatures around the supply tank must be high enough to sustain adequate vaporization, or the system will not deliver the needed fuel volume.
- In addition to the cooling effects of ambient air, the vaporization process itself provides an additional cooling effect.

◆ LP FUEL SYSTEM

LP is supplied as a liquid in pressure tanks. It is usually made up of propane, butane, or a mixture of the two gases. Propane tends to vaporize readily even at temperatures as low as -20° F (-29° C). However, butane reverts to its liquid state when temperatures drop below 32° F (0° C).

LP in a liquid withdrawal system must be converted to its gaseous state before it is introduced into the engine carburetor. A vaporizer-converter is generally used to accomplish this. In such a converter, heated engine coolant is ported through the converter to provide the necessary heat for conversion of the fuel from a liquid to a gaseous state.

SPECIFICATIONS

◆ GENERATOR

Type .... Synchronous
Rotor Insulation .... Class H
Stator Insulation .... Class H
Total Harmonic Distortion .... < 3.5%
Telephone Interference Factor (TIF) .... < 50
Alternator Output Leads 3-phase 4-wire
Bearings .... Sealed Ball
Coupling .... Flexible Disc
Load Capacity (Standby Rating) 35kW*

* NOTE: Generator rating and performance in accordance with ISO8528-5, BS5514, SAE J1349, ISO3046 and DIN 6271 Standards. KW rating is based on LPG fuel and may derate with natural gas.

Excitation System .... Direct

Generator Output Voltage/kW - 60 Hz	kW	Amp	CB Size
120/240V, 1-phase, 1.0 pf	35	146	175
120/208V, 3-phase, 0.8 pf	35	121	150
277/480V, 3-phase, 0.8 pf	35	53	60

Generator Locked Rotor KVA Available @ Voltage Dip of 35%
Single-phase or 208, 3-phase .... 69 KVA
480V, 3-phase .... 76 KVA

◆ ENGINE

Make .... Generac
Model .... In Line
Cylinders and Arrangement 4
Displacement .... 2.4 Liter
Bore .... 3.41 in.
Stroke .... 3.94 in.
Compression Ratio 8.5-to-1
Air Intake System .... Naturally Aspirated
Valve Seats .... Hardened
Lifter Type .... Hydraulic

Engine Parameters

Rated Synchronous RPM .... 60 Hz, 3600
HP at rated kW .... 60 Hz, 55

Exhaust System

Exhaust Flow at Rated Output 60 Hz .... 360 cfm
Exhaust Temperature at Rated Output .... 1050° F

Combustion Air Requirements (Natural Gas)

Flow at rated power, 60 Hz .... 129 cfm

Governor

Type .... Electronic
Frequency Regulation .... Isochronous
Steady State Regulation .... ± 0.25%

Engine Lubrication System

Type of Oil Pump .... Gear
Oil Filter .... Full Flow Spin-on, Cartridge
Crankcase Oil Capacity .... 4 U.S. qts.

◆ COOLING SYSTEM

Type .... Pressurized Closed Recovery
Water Pump .... Belt Driven
Fan Speed .... 2150 rpm
Fan Diameter .... 22 inches
Fan Mode .... Puller
Air Flow (inlet air including alternator and combustion air) .... 3200 ft^3/min.
Coolant Capacity .... (2.5 U.S. gal.)
Heat Rejection to Coolant .... 134,000 Btu/h
Maximum Operating Air Temp. on Radiator .... 60° C (150° F)
Maximum Ambient Temperature .... 50° C (140° F)

◆ FUEL SYSTEM

Type of Fuel .... Natural Gas, Propane Vapor
Carburetor .... Down Draft
Secondary Fuel Regulator .... Standard
Fuel Shut-off Solenoid .... Standard
Operating Fuel Pressure .... 5 in. - 14 in. Water Column

Fuel Consumption - ft^3/hr (Natural Gas/LPV)

Exercise Cycle	*25% Load*	*50% Load*	*75% Load*	*100% Load*
87/34.5	150/59.6	291/115.7	405/160.8	560/222.3

◆ ELECTRICAL SYSTEM

Battery Charge Alternator .... 12V, 30 Amp
Static Battery Charger .... 2 Amp
Recommended Battery .... Group 26, 525CCA
System Voltage .... 12 Volts

Voltage Regulator

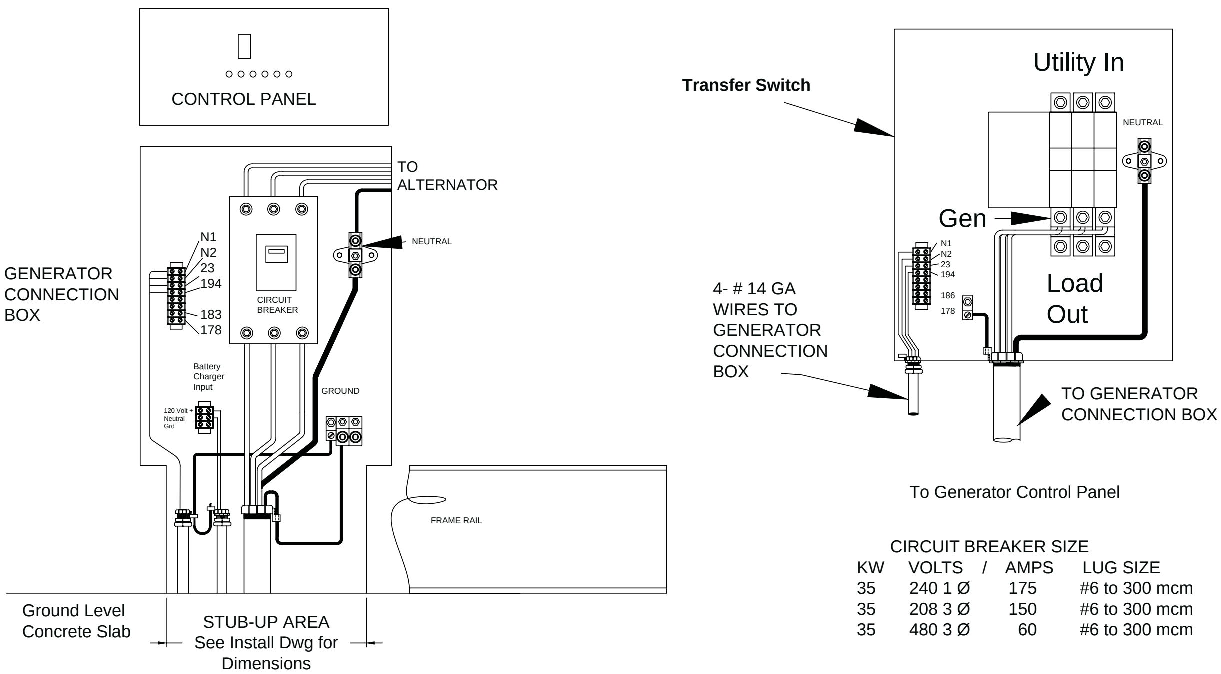
Type .... Electronic
Sensing .... Single-phase
Regulation .... ± 1%
Features .... V/F Adjustable, Adjustable Voltage and Gain LED Indicators

Power Adjustment for Ambient Conditions

Temperature Deration
3% for every 10° C above °C 40
1.65% for every 10° above °F 104
Altitude Deration
1% for every 100 m above m 915
3% for every 1000 ft. above ft. 3000

Controller R-200

Figure 1 — Interconnections



CIRCUIT BREAKER SIZE

KW	VOLTS /	AMPS	LUG SIZE
35	240 1 Ø	175	#6 to 300 mcm
35	208 3 Ø	150	#6 to 300 mcm
35	480 3 Ø	60	#6 to 300 mcm

◆ COLD WEATHER KIT

For cold climates, optional cold weather kit (part number 0F6148) is recommended. The kit includes:

- Battery Warmer
- 4” Junction Box with hardware
- 6 qt. pack 5W-30 synthetic oil (engine)

◆ RECONFIGURING THE FUEL SYSTEM

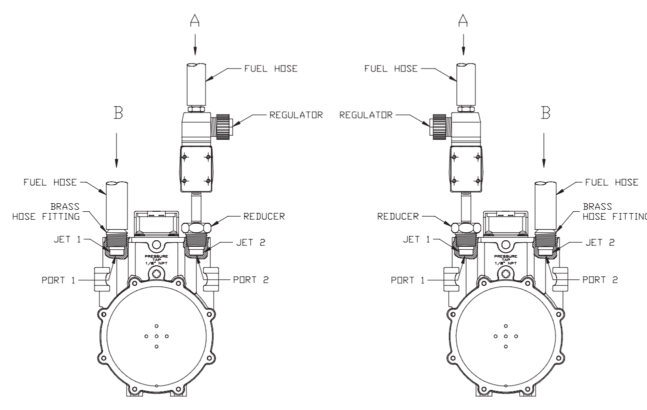
NOTE:

All models are configured for natural gas or LP vapor from the factory.

To reconfigure the fuel system from NG to LP, follow these steps:

1. Turn the main gas supply off.
2. Remove the carburetor fuel hose from the outlet port (Port 1) of the demand regulator (Figure 6.2).
3. Remove the brass hose fitting from the outlet port (Port 1) of the demand regulator.
4. Remove the brass hose fitting with solenoid from Port 2.
5. Install brass hose fitting into Port 2.
6. Install the brass hose fitting with solenoid into Port 1.
7. Connect carburetor gas hose to brass fitting.
8. Tighten all clamps and plugs.
9. Make sure fuel supply is of the proper pressure and type for configuration.
10. Reverse the procedure to convert back to natural gas.
11. The Dip switch inside the control panel must be in the LP or NG position when switching to different fuels.

Figure 6.2 — Reconfigure the Fuel System



NOTE:

Port 1 is for NG only and Port 2 is for LP vapor only. No provision for dual fuel has been made.

⚠ DANGER ⚠

⚠ Serious injury or damage may occur if not configured properly. Please consult an Authorized Service Dealer with any questions.

GENERATOR AC LEAD CONNECTIONS

See "Voltage Codes". This generator may be rated at any one of three voltages, either single-phase or three-phase. The electrical wires in the unit's AC connection (lower) panel should be installed according to the number of leads and the voltage/phase required for the application. If there are any questions regarding lead connection, refer to the wiring diagrams at the back of this manual.

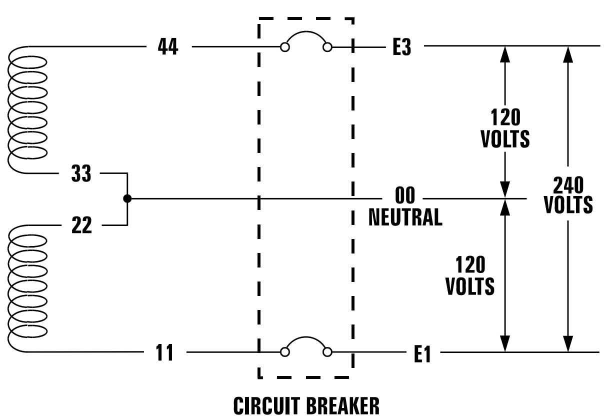
Voltage codes apply to the type of stator assembly installed on a particular generator.

◆ FOUR-LEAD, SINGLE-PHASE STATOR

Four-lead generators (see Figure 7.1) are designed to supply electrical loads with voltage code "A" (240V, 1-phase, 60 Hz). Electrical power is produced in the stator power windings. These windings were connected at the factory to the main circuit breaker as shown in Figure 7.1.

The rated voltage between each circuit breaker terminal is 240V. The rated voltage between each circuit breaker terminal and the neutral point 00 is 120V.

Figure 7.1 — Four-lead, Single-phase Stator



ALTERNATOR POWER WINDING CONNECTIONS

◆ 3-PHASE ALTERNATORS

The generator is designed to supply 3-phase electrical loads. Electric power is produced in the alternator power windings. These windings were connected at the factory to the main circuit breaker with a "Y" configuration as shown in Figures 7.2 and 7.3.

The rated voltage between circuit breaker terminals E1-E2, E1-E3 and E2-E3 is either 480V or 208V depending on the model.

The rated voltage between each circuit breaker terminal and the neutral point 00 is either 277V or 120V depending on the model.

Figure 7.2 — Stator Power Winding Connections - 3-phase, 277/480V (6 Lead)

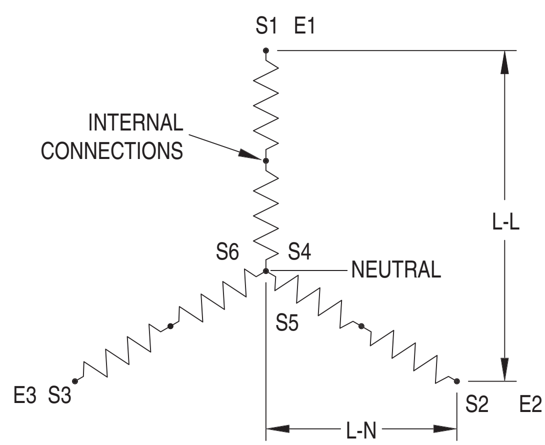
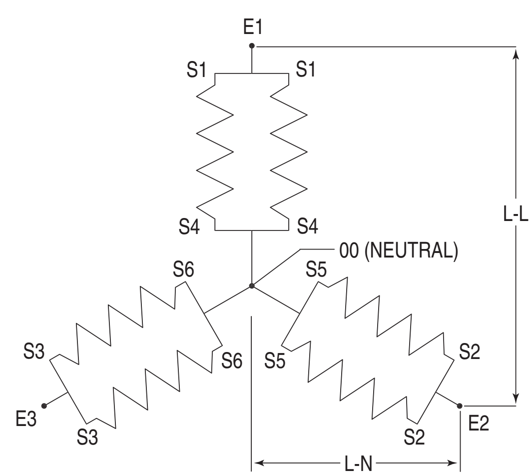


Figure 7.3 — Stator Power Winding Connections - 3-phase, 120/208V (6 Lead)



INSTALLATION

Refer to the separate "Installation Guide QT Product Line" supplied with the unit.

PREPARATION BEFORE START-UP

The instructions in this section assume that the standby generator has been properly installed, serviced, tested, adjusted and otherwise prepared for use by a competent, qualified installation contractor. Be sure to read the "Safety Rules", as well as all other safety information in this manual, before attempting to operate this (and related) equipment.

Before starting the generator for the first time, the installer must complete the following procedures. For follow-up maintenance information and/or service intervals, please refer to the "Maintenance" section and the "Service Schedule".

◆ TRANSFER SWITCH

If this generator is used to supply power to any electrical system normally powered by an electric utility, the National Electrical Code requires that a transfer switch be installed. The transfer switch prevents electrical backfeed between two different electrical systems. (For additional information, see the applicable transfer switch manual for this unit.) The transfer switch, as well as the generator and other standby components, must be properly located and mounted in strict compliance with applicable codes, standards and regulations.

◆ FUEL SYSTEM

Make sure the fuel supply system to the generator (a) delivers the correct fuel at the correct pressure and (b) is properly purged and leak tested according to code. No fuel leakage is permitted. See "Specifications" for more information.

◆ GENERATOR SET LUBRICATION

Check the engine crankcase oil level before operating and add oil to the proper level – the dipstick "FULL" mark. Never operate the engine with the oil level below the dipstick "ADD" mark. See "Specifications" and "Engine Oil Recommendations".

NOTE:

This engine is shipped from the manufacturer with "break-in" oil. This oil should be changed after 30 hours of operation.

Check the oil level in the generator gearbox (if so equipped) prior to initial use and at the intervals indicated by the "Service Schedule." The recommended oil is SAE 90 gear lubricant.

Also, if the engine is equipped with a mechanical governor, make sure the governor is properly lubricated with clean engine oil.

◆ PRIOR TO INITIAL START-UP

⚠ CAUTION ⚠

⚠ **Prior to initially starting the generator, it must be properly prepared for use. Any attempt to crank or start the engine before it has been properly serviced with the recommended types and quantities of engine fluids (oil, coolant, fuel, etc.) may result in an engine failure.**

◆ ENGINE COOLANT

Have the engine cooling system properly filled with the recommended coolant mixture. Check the system for leaks and other problems. See "Specifications" and "Coolant" sections.

◆ BELT TENSION

Check-the engine-fan belt tension and condition prior to placing the unit into service and at recommended intervals. Belt tension is correct when a force of approximately 22 pounds (10 kg), applied midway between pulleys, deflects the belt about 3/8- to 5/8-inch (10 to 16 mm).

◆ ELECTRICAL SYSTEM

Make sure the generator is properly connected to an approved earth ground.

Make sure the generator battery is fully charged, properly installed and interconnected, and ready for use.

Check to ensure that there are no loose electrical connections. Restrain any loose wires to keep them clear of any moving generator set components.

INITIAL INSPECTION FOR QT GENSET STARTUP

Inspect for the following.

- Freight Damage.
- Manuals present.
- Fluid Levels (Oil, coolant, battery, Gear Drive).
- Correct fuel piping.
- Correct muffler installation for QT50, QT70, QT100 - QT150.
- Adequate air flow, clearances and ventilation per installation drawings and applicable codes.
- Correct AC and DC wire size, connections and grounding. Control and communication wiring to/ from the transfer switch must be run in a separate conduit from the AC power leads.
- Battery charger connection to 120 VAC.
- Communication wires connected between transfer switch and generator (HTS only).
- Unit secured to pad.

START-UP CHECKLIST

WARNING

Before working on the generator, ensure the following:

- **The AUTO/OFF/MANUAL switch is in the OFF position.**
- **The 120VAC supply to the battery charger is switched OFF.**

◆ PREPARATION FOR START-UP

- Ensure that the 120VAC circuit breaker to the battery charger is open.
- Remove the fuse from the the control panel. For the H-100 and R-series: Open the front door of the control box and remove the 15 Amp ATO fuse in the lower left-hand corner of the control box.
- Connect the battery cables to the battery. Attach negative battery cable last.
- Close the 120VAC circuit breaker to the battery charger.
- Measure the voltage at the battery before and after the charger is turned on.
- Verify all AC electrical connections are tight at the circuit breaker and transfer switch.
- Visually inspect entire area looking for loose paper, plastic wrappings, leaves, etc.
- Check all hoses clamps fittings for leaks or damage.
- Check all electrical plugs throughout the generator. Ensure each plug is seated correctly and fully inserted into its receptacle.
- Verify the AUTO/OFF/MANUAL switch is in OFF position.
- Open the valve to the engine fuel line.
- Bleed the fuel system of air. (necessary for long fuel lines).
- Open the generator main line circuit breaker.
- Connect a manometer to the gas line and record the static pressure. It must be as listed in the Specifications.
- Insert the fuse into the control panel.
- Move the AUTO/OFF/MANUAL switch to the MANUAL position. The engine should now crank and start.
- Check voltage at the generator terminals.
- For 3-phase units, check phase rotation at the transfer switch terminals. The generator phase rotation must match the utility phase rotation.
- Check for coolant, fuel, oil, and exhaust leaks.
- Close the generators main line circuit breaker.
- Turn the generator set off.
- Connect the UTILITY supply to the transfer switch.
- Set the AUTO/OFF/MANUAL switch to AUTO.
- Disconnect utility power before the transfer switch.

  Engine should start, transfer to load.

  Run at least 15 minutes on generator power. Make certain all 3-phase loads are functioning correctly (correct phase rotation).
- Reconnect Utility power

  Transfer switch will transfer back to Utility and engine will shut down within the given time parameters set up for the specific transfer switch and controller.
- Install all covers, access plates and door panels.
- Put the Owners Manual in a safe and accessible place.
- Make certain the AUTO/OFF/MANUAL switch is in the AUTO position.

◆ START-UP INSPECTION

When a start-up is performed by an Authorized Service Dealer, a standard three-part form titled "Start-up Inspection for Standby Power Systems" (part no. 067377), should be completed by the installation technician or engineer. See page 1-3 for information on locating the nearest Authorized Service Dealer. The installer should complete the form and disseminate copies as follows:

- White copy: Mail to Generac Warranty Department, P.O. Box 340, 211 Murphy Dr., Eagle, WI 53119-2062.
- Pink Copy: For service file of installing dealer.
- Yellow Copy: For the customer's records.

GENERATOR CONTROL AND OPERATION

Refer to the appropriate control panel operator's manual for this unit.

OPERATING UNIT WITH MANUAL TRANSFER SWITCH

If the generator was installed in conjunction with a transfer switch capable of manual operation only, the following procedure applies. A manually operated transfer switch is one that will not provide automatic start-up and does not include an intelligence circuit.

◆ ENGINE START-UP AND TRANSFER

For additional information, refer to the applicable control panel manual for this unit, as well as any literature pertaining to the specific transfer switch.

DANGER

The Maintenance Disconnect Switch and the AUTO/OFF/MANUAL switches (if so equipped) must be set properly, or the generator will crank and start as soon as the utility power to the transfer switch is turned off. Refer to applicable control panel and transfer switch manuals for more information.

Do not proceed until certain that utility source voltage is available to the transfer switch and the transfer switch main contacts are set to UTILITY.

Do not attempt manual operation until all power supplies to the transfer switch have been positively turned off, or extremely dangerous - possibly lethal - electrical shock will result.

Transfer switch enclosure doors should be kept closed and locked. Only authorized personnel should be allowed access to the transfer switch interior. Extremely high and dangerous voltages are present in the transfer switch.

In order to transfer load from the utility source to the generator, follow these directions:

- Turn OFF or disconnect the utility power circuit to the transfer switch, using the means provided (such as the utility source main line circuit breaker).
- Set the transfer handle to its UTILITY (NORMAL) position with load circuits connected to the utility power supply.
- Set the standby generator's main line circuit breaker to its OFF (or OPEN) position.
- Start the generator.

CAUTION

Do not crank the engine continuously for longer than 30 seconds, or the heat may damage the starter motor.

- Let engine stabilize and warm up.
- Check all applicable instrument and gauge readings. When certain that all readings are correct, move the transfer switch manual handle to its STANDBY (GENERATOR) position, i.e., load circuits supplied by the generator.
- Set the standby generator's main line circuit breaker to its ON (or CLOSED) position.
- Load circuits are now powered by the standby generator.

◆ RETRANSFER AND SHUTDOWN

For additional information, refer to the applicable control panel manual for this unit, as well as any literature pertaining to the specific transfer switch.

To transfer the load back to the utility power source and shut down the generator, follow these directions:

- Set the standby generator's main line circuit breaker to its OFF (or OPEN) position.
- Manually move the transfer switch handle to its UTILITY (NORMAL) position, i.e., load circuits connected to the utility.
- Turn ON the utility power supply to the transfer switch, using the means provided (such as the utility power source main line circuit breaker).
- Let the generator run at no-load for a few minutes to stabilize internal temperatures.
- Shut down the generator.

OPERATING UNIT WITH AUTOMATIC TRANSFER SWITCH

If the generator has been installed with an automatic transfer switch, such as an RTS, HTS, or GTS-type transfer switch, the engine may be started and stopped automatically or manually.

NOTE:

Refer to the applicable manual for your transfer switch and to "Transfer Switch Start Signal Connections". In addition, please note the dangers under "Engine Start-up and Transfer."

MAINTENANCE PERFORMED BY AUTHORIZED SERVICE FACILITIES

WARNING

Before working on the generator, ensure the following:

- **The AUTO/OFF/MANUAL switch is in the OFF position.**
- **The 15A fuse has been removed from the control box.**
- **The 120VAC supply to the battery charger is switched OFF.**

◆ EVERY THREE MONTHS

1. Check battery condition.
2. Inspect and test fuel system.
3. Check transfer switch.
4. Inspect exhaust system.
5. Check engine ignition system.
6. Check fan belts.

◆ ONCE EVERY SIX MONTHS

1. Test Engine Safety Devices (low oil pressure, low coolant level, high coolant temperature).

◆ ONCE ANNUALLY

1. Test engine governor; adjust or repair, if needed.
2. Clean, inspect generator.
3. Flush cooling system.

◆ FIRST 30 OPERATING HOURS

1. Change engine "break-in" oil and filter.

◆ FIRST 100 OPERATING HOURS

1. Change engine oil and oil filter. After initial change, service engine oil and filter at 100 operating hours or six months, whichever comes first.
2. Retorque cylinder head.
3. Retorque intake and exhaust manifold.

◆ EVERY 500 OPERATING HOURS

1. Service air cleaner.
2. Check starter.
3. Check engine DC alternator.

◆ EVERY 800 OPERATING HOURS

1. Retorque cylinder head.
2. Retorque intake and exhaust manifold.
3. Check engine compression.
4. Check valve clearance.

COOLING SYSTEM

Air intake and outlet openings in the generator compartment must be open and unobstructed for continued proper operation. This includes such obstructions as high grass, weeds, brush, leaves and snow.

Without sufficient cooling and ventilating air flow, the engine/generator quickly overheats, which causes it to shut down. (See the installation diagram.)

WARNING

The exhaust system parts from this product get extremely hot and remains hot after shutdown. High grass, weeds, brush, leaves, etc. must remain clear of the exhaust. Such materials may ignite and burn from the heat of the exhaust system.

OVERLOAD PROTECTION FOR ENGINE DC ELECTRICAL SYSTEM

Engine cranking, start up and running are controlled by a solid state Engine Controller circuit board. Battery voltage is delivered to that circuit board via a 15 amp fuse. These overcurrent protection devices will open if the circuit is overloaded.

CAUTION

If a circuit breaker opens or a fuse element melts, find the cause of the overload before resetting the circuit breaker or replacing the fuse.

CHECKING FLUID LEVELS

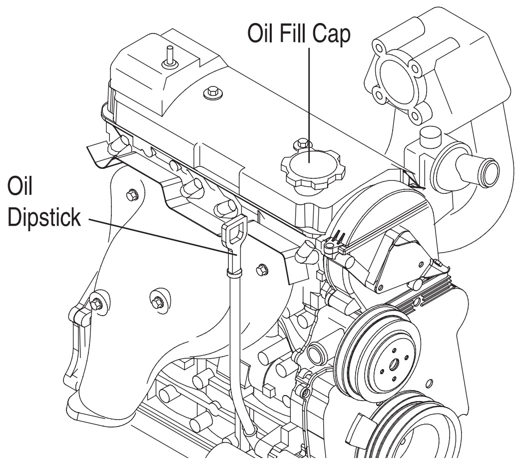
◆ CHECK ENGINE OIL

Check engine crankcase oil level (Figure 10.1) at least every 20 hours of operation, or prior to use.

- Remove oil dipstick and wipe dry with a clean, lint-free cloth.
- Install oil dipstick, then remove again.
- Oil should be between FULL and ADD marks.
- If oil level is below the dipstick ADD mark, remove oil fill cap-. Add the recommended oil to bring oil level up to the FULL mark. DO NOT FILL ABOVE THE “FULL” MARK. See “Engine Oil Recommendations” for recommended oils.

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Figure 10.1 - Oil Dipstick and Oil Fill Cap



◆ BATTERY FLUID

Check battery electrolyte fluid based on the Maintenance Schedule. Fluid should cover separators in all battery cells. If fluid level is low, add distilled water to cover tops of separators. DO NOT USE TAP WATER IN BATTERY.

◆ ENGINE COOLANT

Check coolant level in coolant recovery bottle. See Specifications.

- Add recommended coolant mixture as necessary.
- Periodically remove radiator pressure cap (only when engine has cooled down) to make sure the coolant recovery system is functioning properly. Coolant should be at bottom of radiator filler neck. If coolant level is low, inspect gasket in radiator pressure cap. Replace cap, if necessary. To have pressure cap tested, contact an Authorized Service Dealer. Inspect cooling system and coolant recovery system for leaks.

MAINTENANCE OWNER/ OPERATOR CAN PERFORM

◆ CHECK ENGINE OIL LEVEL

Refer to "Checking Fluid Levels".

◆ CHECK BATTERY

- See "Checking Fluid Levels".
- Check battery cables for condition, tightness, corrosion or damage. Clean, tighten or replace as necessary.

◆ EXERCISE SYSTEM

Start the generator engine at least once every seven days and let it run at least 20 minutes. See "Weekly Exercise Cycle".

◆ INSPECT COOLING SYSTEM

- Inspect engine cooling system. See "Maintenance Schedule".
- Check hoses for damage, deterioration, leaks, etc. Correct any discrepancies found.
- Check hose clamps for tightness.

◆ CHECK ENGINE COOLANT LEVEL

See "Checking Fluid Levels".

◆ PERFORM VISUAL INSPECTION

Complete a thorough visual inspection of the entire engine-generator monthly. Look for obvious damage, loose, missing or corroded nuts, bolts and other fasteners. Look for fuel, oil or coolant leaks.

◆ INSPECT EXHAUST SYSTEM

Inspect the exhaust system at least once every three months. Check all exhaust system pipes, mufflers, clamps, etc. for condition, tightness, leaks, security, damage.

◆ CHECK FAN BELT

- Inspect fan belts every three months. Replace any damaged, deteriorated, worn or otherwise defective belt.
- Check fan belt tension. Thumb pressure, exerted midway between pulleys, should deflect about 3/8 to 5/8 of an inch. Adjust belt tension as required.

◆ INSPECT ENGINE GOVERNOR

Visually inspect electronic governor.

⚠ DANGER ⚠

⚠ **Do not attempt to adjust the governor. Only qualified service facilities should adjust the governor. Excessively high operating speeds are dangerous and increase the risk of personal injury. Low speeds impose a heavy load on the engine when adequate engine power is not available and may shorten engine life. Correct rated frequency and voltage are supplied only at the proper governed speed. Some connected electrical load devices may be damaged by incorrect frequency and/or voltage. Only qualified service technicians should adjust the governed speed.**

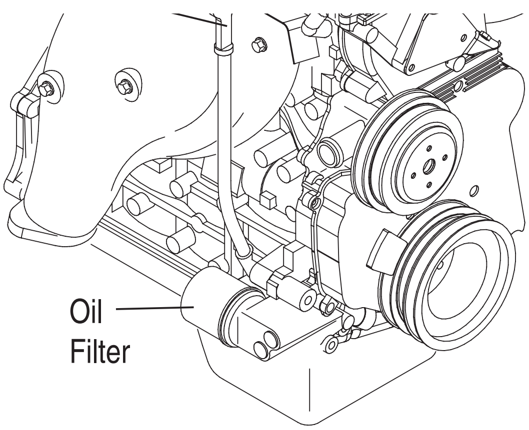
◆ CHANGING ENGINE OIL

Refer to maintenance performed by authorized service facilities for engine oil and filter change frequencies.

Drain the oil while the engine is still warm from running. This means warm up the engine, shut it down and drain immediately as follows:

1. Remove OIL DRAIN HOSE from its retaining clip.
2. Loosen and remove OIL DRAIN HOSE CAP. Drain oil completely into suitable container.
3. When all oil has drained, install and tighten OIL DRAIN HOSE CAP, and re-install into its retaining clip.
4. Turn OIL FILTER (Figure 10.2) counterclockwise and remove. Properly dispose of old filter.

Figure 10.2 – Oil Filter



5. Apply light coating of new engine oil to seal of new oil filter.-Install FILTER and tighten by hand only. DO NOT OVER TIGHTEN.
6. Remove OIL FILL CAP. Add recommended oil (see SPECIFICATIONS). DO NOT FILL ABOVE THE DIPSTICK “FULL” MARK. Crankcase oil capacity is 4.0 U.S. quarts (3.8 liters).

CAUTION

After refilling the crankcase with oil, always check oil level on dipstick. NEVER OPERATE ENGINE WITH OIL BELOW THE DIPSTICK “ADD” MARK.

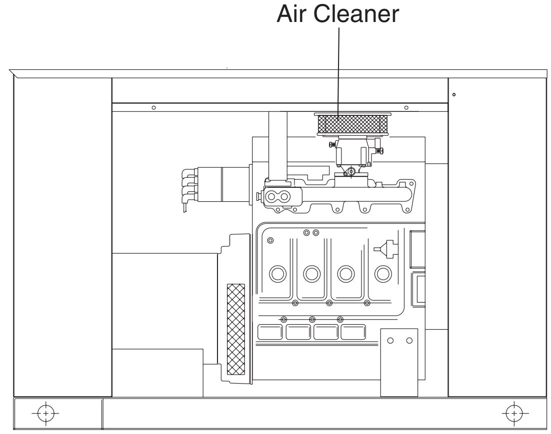
7. Start engine and check for oil leaks.

◆ CHANGING THE ENGINE AIR CLEANER

To replace the engine air cleaner, remove the air cleaner cover and replace the air filter making sure it is positioned properly before reattaching the cover (Figure 10.3).

See the “Service Schedule,” for air cleaner maintenance.

Figure 10.3 – Engine Air Cleaner



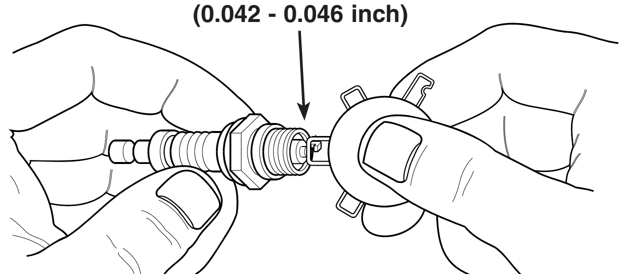
(Doors Removed for Clarity)

◆ SPARK PLUGS

Reset the spark plug gap or replace the spark plugs as necessary (Figure 10.4).

1. Clean the area around the base of the spark plugs to keep dirt and debris out of the engine. Clean by scraping or washing using a wire brush and commercial solvent. Do not blast the spark plugs to clean.
2. Remove the spark plugs and check the condition. Replace the spark plugs if worn or if reuse is questionable. See the “Service Schedule,” Section 6, for recommended inspection.
3. Check the spark plug gap using a wire feeler gauge. Adjust the gap to 1.07-1.17 mm (0.042-0.046 inch) by carefully bending the ground electrode (Figure 10.4).

Figure 10.4 – Setting the Spark Plug Gap



◆ COOLANT CHANGE

Every year, have an Authorized Service Facility drain, flush and refill the cooling system. See “Specifications” for cooling system recommendations.

MISCELLANEOUS MAINTENANCE

◆ CLEANING THE GENERATOR

Keep the generator as clean and as dry as possible. Dirt and moisture that accumulates on internal generator windings have an adverse effect on insulation resistance.

Periodically clean generator exterior surfaces. A soft brush may be used to loosen caked on dirt. Use a vacuum system or dry, low pressure air to remove any accumulations of dirt. The generator is housed inside an all-weather enclosure, clean the enclosure with a soft, damp cloth or sponge and water.

Once each year have the generator cleaned and inspected by an Authorized Service Dealer. That dealer will use dry, low pressure air to clean internal windings. Parts inside the control console should be cleaned and inspected at this time as well.

Finally, have the insulation resistance of stator and rotor windings checked. If insulation resistances are excessively low, the generator may require drying.

◆ BATTERY

All lead-acid storage batteries discharge when not in use. Refer to specific instructions and warnings that accompany the battery. If such information is not available, observe the following precautions when handling a battery:

- DO NOT use jumper cables and a booster battery to crank or start the generator engine.
- DO NOT recharge a weak battery while it is installed in the generator. Remove battery from generator and recharge in a well-ventilated area, away from fuel vapors, sparks, heat or flames.
- Battery electrolyte fluid is an extremely caustic sulfuric solution that can cause severe burns. DO NOT permit fluid to contact eyes, skin, clothing, painted surfaces, wiring insulation, etc. If any battery fluid is spilled, flush the affected area with clear water immediately.
- Always wear safety glasses, rubber apron and gloves when handling a battery.
- Batteries give off explosive hydrogen gas while charging. The gas can form an explosive mixture around the battery for several hours after charging. Any spark, heat or flames can ignite the gas and cause an explosion which can shatter the battery, causing blindness or other serious injury.

◆ BATTERY MAINTENANCE

The battery should be inspected per Section 4.7, Scheduled Maintenance. The following procedure should be followed for inspection:

1. Inspect the battery posts and cables for tightness and corrosion. Tighten and clean as necessary.
2. Check the battery fluid level of unsealed batteries and, if necessary, fill with DISTILLED WATER ONLY. DO NOT USE TAP WATER IN BATTERIES.
3. Have the state of charge and condition checked. This should be done with an automotive-type battery hydrometer.

DANGER

Storage batteries give off explosive hydrogen gas. This gas can form an explosive mixture around the battery for several hours after charging. The slightest spark can ignite the gas and cause an explosion. Such an explosion can shatter the battery and cause blindness or other injury. Any area that houses a storage battery must be properly ventilated. Do not allow smoking, open flame, sparks or any spark producing tools or equipment near the battery.

Battery electrolyte fluid is an extremely corrosive sulfuric acid solution that can cause severe burns. Do not permit fluid to contact eyes, skin, clothing, painted surfaces, etc. Wear protective goggles, protective clothing and gloves when handling a battery. If fluid is spilled, flush the affected area immediately with clear water.

Do not use any jumper cables or booster battery to crank and start the generator engine. If the battery has completely discharged, remove it from the generator for recharging.

WARNING

Be sure the AUTO/OFF/MANUAL switch is set to the OFF position, before connecting the battery cables. If the switch is set to AUTO or MANUAL, the generator can crank and start as soon as the battery cables are connected.

Be sure the 120VAC power supply to the battery is turned OFF, or sparking may occur at the battery posts as the cables are attached and cause an explosion.

◆ BATTERY REPLACEMENT

When replacing batteries, use the same number and the type of battery that follows:

BCI Group No.	CCA
26	525 @ 0 deg. F

NOTE:

The BCI number should be located directly on the battery.

SERVICE SCHEDULE

30 KW - 150 KW STANDBY GAS ENGINE DRIVEN GENERATOR SETS

The following is a recommended maintenance schedule for standby gas engine driven generator sets from 30kW to 150 kW in size. The established intervals in the schedule are the maximum recommended when the unit is used in an average service application. They will need to be decreased (performed more frequently) if the unit is used in a severe application. Use calendar time, from the previous maintenance interval to determine the next required maintenance interval.

Service Maintenance Interval Information:

The various service maintenance intervals are designated by interval numbers as follows:

1 An early inspection of the generator set to insure it is ready to operate when required and to identify any potential problem areas.

This inspection may be performed by the end user providing the following safety steps are taken to prevent the engine from starting automatically without warning:

To prevent injury, perform the following steps in the order indicated before starting any maintenance:

- **Disable the generator set from starting and/or connecting to the load by setting the control panel Auto/Off/Manual switch to the "OFF" position.**
- **Remove the 15 amp control panel fuse.**
- **Turn off the battery charger.**
- **Remove the negative battery cable.**

The battery charger must be turned off BEFORE removing the battery cable to prevent an over current condition from burning out sensitive control panel components and circuits.

Following all maintenance, reverse these steps to insure the unit is returned to standby setup for normal operation when required.

2 A wear-in service inspection of the generator set to insure it is ready to operate and carry the load when required, and to identify any potential problem areas.

*Performed **ONLY ONCE** following the first three months or the first 30 hours of operation after purchase of the unit.*

This inspection contains some maintenance tasks which require special tools, equipment, and/or knowledge to accomplish and should be performed only by an Authorized Service Dealer.

3 An operational inspection of the generator set to insure it is ready to operate and carry the load when required, and to identify any potential problem areas.

Performed semi-annually or following each 50 hours of operation of the unit.

This inspection contains some maintenance tasks which require special tools, equipment, and/or knowledge to accomplish and should be performed only by an Authorized Service Dealer.

4 A mid-level inspection of the generator set to insure it is ready to operate and carry the load when required, and to identify any potential problem areas.

Performed annually or following each 100 hours of operation of the unit.

This inspection contains some maintenance tasks which require special tools, equipment, and/or knowledge to accomplish and should be performed only by an Authorized Service Dealer.

5 A comprehensive inspection of the generator set to insure it is properly serviced and ready to operate and carry the load when required, and to identify any potential problem areas.

Performed annually or following each 250 hours of operation of the unit.

This inspection contains some maintenance tasks which require special tools, equipment, and/or knowledge to accomplish and should be performed only by an Authorized Service Dealer.

Standby Generator Sets
Service Schedule

Maintenance Tasks	Level 1 Recom-mended to be done monthly/ 10 hrs.	Task Comp. (Date-Initials)	Level 2 Required to be done 3 months/ Break-in 30 hrs.	Task Comp. (Date-Initials)	Level 3 Required to be done Semi-annually/ 50 hrs.	Task Comp. (Date-Initials)	Level 4 Required to be done Annually/ 100 hrs.	Task Comp. (Date-Initials)	Level5 Required to be done Bi-annually/ 250 hrs.	Task Comp. (Date-Initials)
1. Disable the unit from operating per the first page warning.	⬬		⬬		⬬		⬬		⬬	
2. Check the engine oil level. Adjust as necessary.	⬬		⬬		⬬		⬬		⬬	
3. Check the engine coolant level. Adjust as necessary.	⬬		⬬		⬬		⬬		⬬	
4. Check the engine coolant thermal protection level. Correct as necessary.							⬬		⬬	
5. Check the natural gas delivery system for leaks and correct pressure on gas engine driven units. Tighten connections as necessary.	⬬		⬬		⬬		⬬		⬬	
6. Check the air inlets and outlets for debris. Clean as necessary.	⬬		⬬		⬬		⬬		⬬	
7. Check the battery electrolyte level and specific gravity if accessible. Adjust as necessary.	⬬		⬬		⬬		⬬		⬬	
8. Check the battery posts, cables, and charger for loose connections, corrosion, and proper operation. Correct as necessary.	⬬		⬬		⬬		⬬		⬬	
9. Check the unit wiring for loose connections, corrosion, and damage. Correct as necessary.	⬬		⬬		⬬		⬬		⬬	

Maintenance Tasks	Level 1 Recom-mended to be done monthly/ 10 hrs.	Task Comp. (Date-Initials)	Level 2 Required to be done 3 months/ Break-in 30 hrs.	Task Comp. (Date-Initials)	Level 3 Required to be done Semi-annually/ 50 hrs.	Task Comp. (Date-Initials)	Level 4 Required to be done Annually/ 100 hrs.	Task Comp. (Date-Initials)	Level5 Required to be done Bi-annually/ 250 hrs.	Task Comp. (Date-Initials)
10. Check the engine accessory drive belts and fan coupling device if equipped for correct tension, wear, weather cracking, and damage. Replace as necessary.			●				●		●	
11. Check the engine valve clearance. Adjust as necessary.							●		●	
12. Visually inspect the unit looking for leaks, wear or damage, loose connections or components, and corrosion. Correct as necessary.							●		●	
13. Test the engine and transfer switch safety devices. Correct and/or adjust as necessary.	●		●		●		●		●	
14. Initiate an automatic start and transfer of the unit to site load and exercise it for at least 1 hour looking for leaks, loose connections or components, and abnormal operating conditions. Correct as necessary.							●		●	
15. Replace the engine accessory drive belts.									●	
16. Check gearbox oil level (if equipped).	●		●		●		●		●	
17. Change gearbox oil (if equipped).									●	

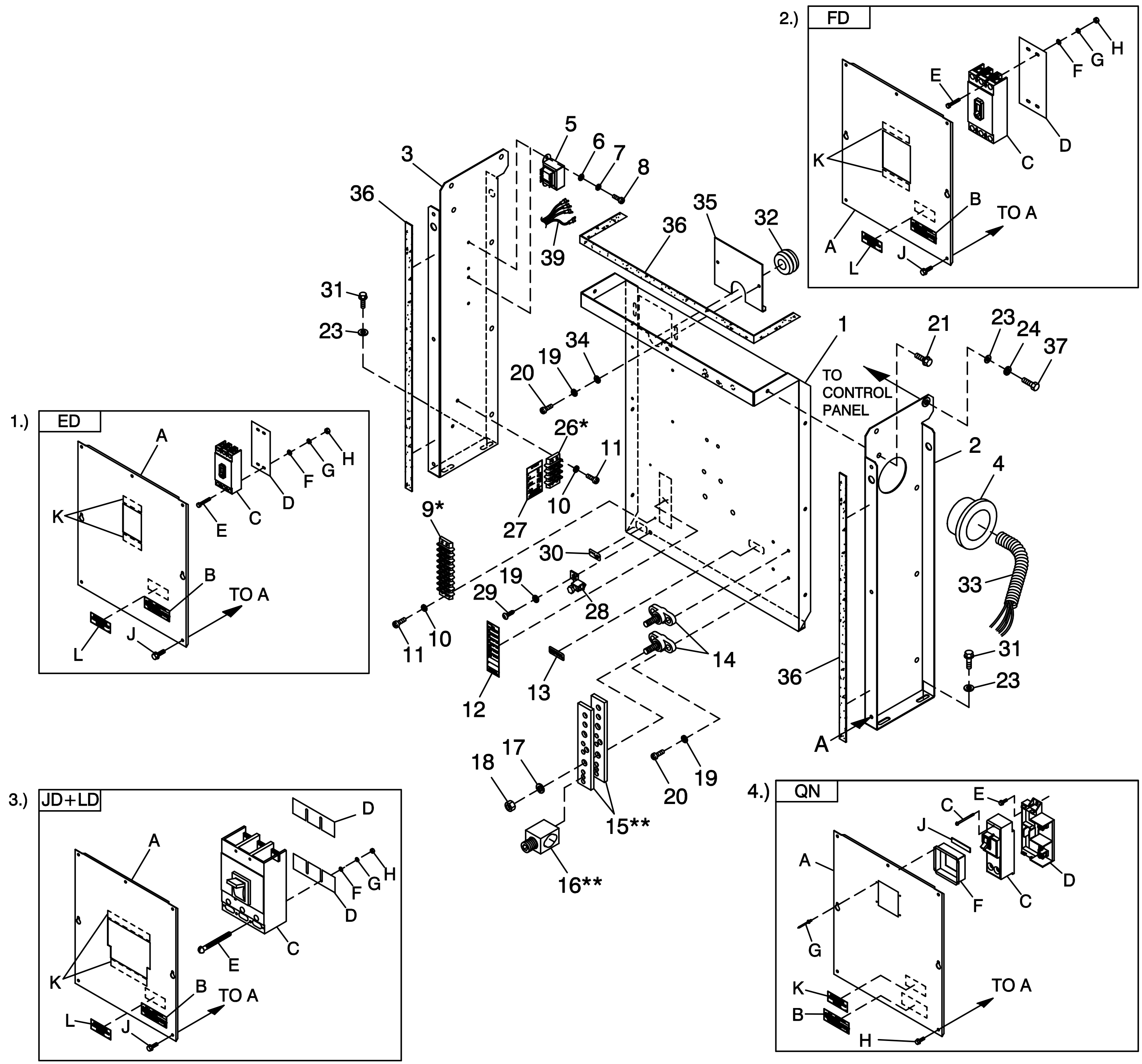
Maintenance Tasks	Level 1 Recom-mended to be done monthly/ 10 hrs.	Task Comp. (Date-Initials)	Level 2 Required to be done 3 months/ Break-in 30 hrs.	Task Comp. (Date-Initials)	Level 3 Required to be done Semi-annually/ 50 hrs.	Task Comp. (Date-Initials)	Level 4 Required to be done Annually/ 100 hrs.	Task Comp. (Date-Initials)	Level5 Required to be done Bi-annually/ 250 hrs.	Task Comp. (Date-Initials)
18. Start and exercise the unit at full rated load (use a load bank if the site load is not enough) for at least 2 hours looking for leaks, loose connections or components, and abnormal operating conditions. Correct as necessary.									●	
19. Perform an engine oil analysis (send a sample to a lab for results). Change the engine oil and filters if the analysis results indicate this is required.							●			
20. Change the engine oil.			●				●		●	
21. Replace the engine oil filter(s).			●				●		●	
22. Replace engine spark plugs. Clean and re-gap or replace as necessary.							●			
23. Replace the engine air filter(s).									●	
24. Perform a 5 minute no-load operational run of the unit looking for any post service problems.			●						●	
25. Return the unit to standby setup for operation when required.	●		●		●		●		●	

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CORRECTION
Engine won't crank.	1. 15 amp fuse blown. 2. Loose or corroded or defective battery cables. 3. Defective starter contactor. 4. Defective starter motor. 5. Dead or Defective Battery. 6. 5 amp fuse blown.	1. Replace fuse. 2. Tighten, clean or replace battery cables as necessary. 3. Replace contactor.* 4. Replace starter motor.* 5. Remove, change or replace battery. 6. Replace fuse.*
Engine cranks but won't start	1. Out of fuel. 2. Fuel solenoid (FS) is defective 3. Open Wire #14A from Engine Control circuit board. 4. Spark plugs defective. 5. Door on tank not closed.	1. Replenish fuel. 2. Replace solenoid.* 3. Reconnect wire. 4. Clean, regap or replace plugs. 5. Close door on tank.
Engine starts hard, runs rough.	1. Flame arrestor (air cleaner) plugged or damaged. 2. Plugged fuel line. 3. Defective spark plugs. 4. Fuel pressure incorrect.	1. Clean or replace as needed. 2. Unclog fuel line. 3. Clean, regap or replace plugs. 4. Confirm fuel pressure to regulator is as recommended in SPECIFICATIONS.
Engine starts then shuts down.	1. Engine oil level is low. 2. Engine is overheated. 3. Defective Low Oil Pressure Switch 4. Defective Coolant Temperature Switch 5. Defective Control Module circuit board. 6. Coolant Level is Low. 7. Defective Low Coolant Level Switch	1. Check oil and add oil as needed. 2. Check cooling system for leaks. 3. Replace switch.* 4. Replace switch.* 5. Replace board.* 6. Repair leak - Add coolant. 7. Replace Switch.*
AUTO/OFF/MANUAL Switch at OFF, engine continues to run	1. Defective AUTO/OFF/MANUAL switch 2. Open/disconnected wire #15A between AUTO/OFF/MANUAL switch and Control Module circuit board. 3. Defective Control Module circuit board	1. Replace switch.* 2. Reconnect/close wire. 3. Replace board.*
No AC output from generator.	1. Check main line circuit breaker. 2. Check circuit breaker & fuses. 3. Transfer switch set to NORMAL position 4. Generator internal failure. 5. Thermal circuit breaker open.	1. Reset to ON or CLOSED. 2. Reset and replace, if necessary. 3. Set to GENERATOR position. 4. * 5. Auto-reset - Wait 5 min. and attempt restart.

***Contact the nearest Authorized Dealer for assistance.**

GROUP A



EXPLODED VIEW:
CPL C2 & C4 FLEX HSB
DRAWING #: 0F3391D

REVISION: G-7783-J
DATE: 5/1/06

EXPLODED VIEW: CPL C2 & C4 FLEX HSB
DRAWING #: 0F3391D

APPLICABLE TO:

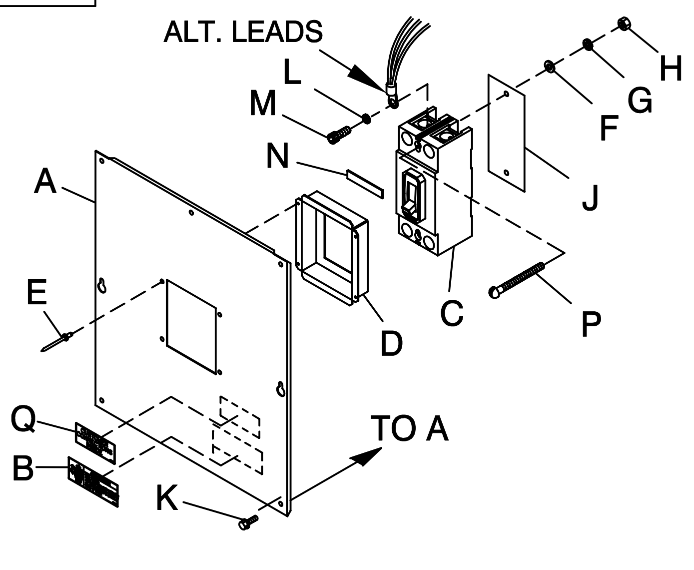
GROUP A

ITEM	PART #	QTY.	DESCRIPTION
1	0F3137	1	PAN CB CONN BOX
2	0F3188	1	STAND RH CONTROL
3	0F3189	1	STAND LH CONTROL
4	023484N	1	BUSHING SNAP SB-2.5-31
(3) 5	0F6366B	1 / 2	XFMR DUAL 120V/16V (FOR 120/240V & 277/480V UNITS)
	0F6366A	1	XFMR DUAL 104V/16V (FOR 120/208V UNITS)
(3) 6	043180	2 / 4	WASHER FLAT M4
(3) 7	022264	2 / 4	WASHER LOCK #8-M4
(3) 8	0C3990	2 / 4	SCREW PHTT M4-0.7 X 10 ZYC
(1) 9	057701	REF	BLOCK TERM 20A 8 X 6 X 1100V
10	022155	4	WASHER LOCK #6
11	0C2428	4	SCREW PHTT #6-32 X 1/2 ZYC
12	0F3824	1	DECAL UTIL SENSE/CUST CONN
13	0A9457	1	DECAL NEUTRAL
14	057073	2	JUNCTION BLOCK 3/8-16
(2) 15	0D5466	REF	BUS BAR NEUTRAL BLOCK 390
(2) 16	0A7822	REF	LUG SLDLSS 600/250-1/0 X 1/4-28
17	022237	2	WASHER LOCK 3/8
18	022241	2	NUT HEX 3/8-16 STEEL
19	049226	4	WASHER LOCK M5
20	0C2266	4	SCREW PHTT M5-0.8 X 16 ZYC
21	0C2454	8	SCREW THF M6-1 X 16 N WA Z/JS
23	022473	8	WASHER FLAT 1/4-M6 ZINC
24	022097	4	WASHER LOCK M6-1/4
(1) 26	0D4698	REF	BLOCK TERM 20A 6 X 3 X 1100V
27	0F4464	1	DECAL CUST CONN 120V UTILITY
28	025433	1	LUG SLDLSS #6-14 X 13/64 CU
29	024469	1	SCREW HHTT #10-32 X 3/8 CZ
30	067210A	1	DECAL GROUND LUG
31	0D6029	4	SCREW HHTT M6-1.0 X 16 ZYC
32	081008	1	GROMMET 1.25 X .25 X .75
33	077043J	1	CONDUIT FLEX 2.0" ID (36" LG)
34	051713	2	WASHER FLAT M5
35	0F6156	1	PLATE WIRE SNGL GALV
36	029289	1	TAPE ELEC 1/2 FOAM (AS REQ'D)
37	047411	4	SCREW HHC M6-1.0 X 16 G8.8
(4) 38	064153B	2	WIRE JUMPER TRANSFORMER (NOT SHOWN)
(5) 39	0G0770	1	HARNESS, TRANSFORMER ADAPTER
1)			UL CIRCUIT BREAKER (ED)
A	0F3328	1	COVER ED CB SHORT STND
B	065469	1	DECAL DANGER HIGH VOLTAGE
C	0D5552	1	CB 0050A 3P 480V S ED4 LL
	0D5554	-	CB 0070A 3P 480V S ED4 LL
	0D5556	-	CB 0090A 3P 480V S ED4 LL
	0D9693	-	CB 0125A 3P 480V S ED4 LL
D	0F0492	1	INSULATOR CB S (ED-3P)
E	048927	4	SCREW RHM #10-32 X 4-1/2
F	023897	4	WASHER FLAT #10 ZINC
G	022152	4	WASHER LOCK #10
H	022158	4	NUT HEX #10-32 STEEL
J	0C2454	7	SCREW THF M6-1 X 16 N WA Z/JS
K	029289	1	TAPE ELEC 1/2 FOAM (AS REQ'D)
L	0F1733	1	DECAL CUSTOMER CONNECT INSIDE
2)			UL CIRCUIT BREAKER (FD)
A	0F3138	1	COVER CB CONN BOX
B	065469	1	DECAL DANGER HIGH VOLTAGE
C	0D5572	1	CB 0150A 3P 600V S FD6 LL
	0D5573	-	CB 0175A 3P 600V S FD6 LL
	0D5574	-	CB 0200A 3P 600V S FD6 LL
	0D5575	-	CB 0225A 3P 600V S FD6 LL
	0D5576	-	CB 0250A 3P 600V S FD6 LL
D	0F0199	1	INSULATOR CB FD FRAME 30MIL
E	081320	4	SCREW SHC 1/4-20 X 4.5 G8.8 NZ
F	022473	4	WASHER FLAT 1/4-M6 ZINC
G	022097	4	WASHER LOCK M6-1/4
H	022127	4	NUT HEX 1/4-20 STEEL
J	0C2454	7	SCREW THF M6-1 X 16 N WA Z/JS
K	029289	1	TAPE ELEC 1/2 FOAM (AS REQ'D)
L	0F1733	1	DECAL CUSTOMER CONNECT INSIDE

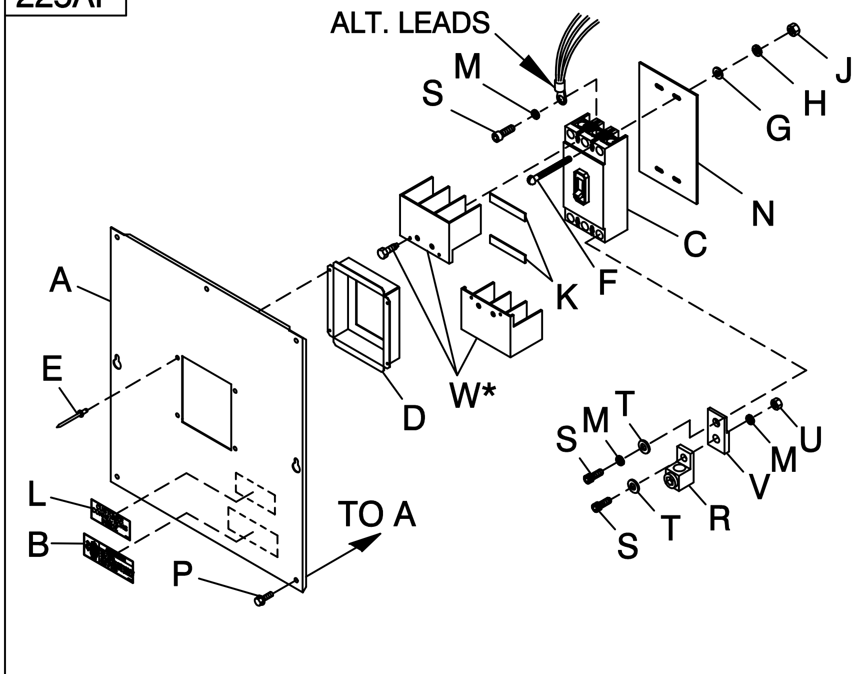
ITEM	PART #	QTY.	DESCRIPTION
3)			UL CIRCUIT BREAKER (JD+LD)
A	0F3329	1	COVER JD/LD CB SHRT STAND
B	065469	1	DECAL DANGER HIGH VOLTAGE
C	0D5577	1	CB 0300A 3P 600V S JD6 LL
D	0F2353	2	INSULATOR CIRCUIT BR. JD/LD
E	022770	4	SCREW RHM 1/4-20 X 3
F	022473	4	WASHER FLAT 1/4-M6 ZINC
G	022097	4	WASHER LOCK M6-1/4
H	022127	4	NUT HEX 1/4-20 STEEL
J	0C2454	7	SCREW THF M6-1 X 16 N WA Z/JS
K	029289	1	TAPE ELEC 1/2 FOAM (AS REQ'D)
L	0F1733	1	DECAL CUSTOMER CONNECT INSIDE
4)			UL CIRCUIT BREAKER (QN)
A	0F8135	1	COVER QN FRM CB
B	065469	1	DECAL, DANGER HIGH VOLTAGE
C	0E7283	-	CB 0150A 2P 240V S QN2 LL
	0E7284	-	CB 0175A 2P S QN2 LL 240V
D	0E3664	1	BASE, QN CIRCUIT BREAKER
E	074908	2	SCREW HHTT M5-0.8 X 10 BP
F	0F8140	1	COVER QN CB DISH
G	036261	4	RIVET POP .125 X .275 SS
H	0C2454	7	SCREW THF M6-1X16 N WA Z/JS
J	029289	1	TAPE ELEC 1/2 FOAM (AS REQ'D)
K	0F1733	1	DECAL CUSTOMER CONNECT INSIDE

(1) ITEM INCLUDED WITH HARNESS
(2) ITEM INCLUDED WITH 0D5464B
(3) ITEM QTY. DOUBLES FOR 277/480V
(4) ITEM USED WITH 277/480V UNITS ONLY
(5) ITEM USED WITH 208V UNITS ONLY

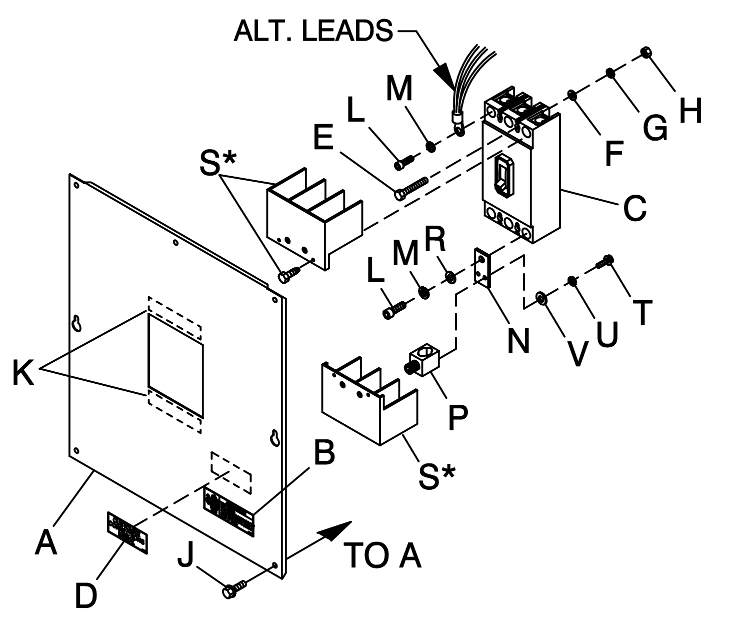
5.) QJ-2P



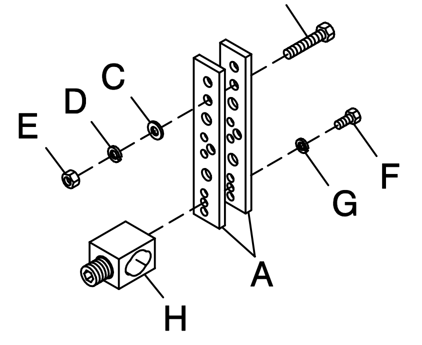
6.) 225AF



7.) 400AF



8.) 0D5464B



EXPLODED VIEW:
CPL C2 & C4 FLEX HSB
DRAWING #: 0F3391D

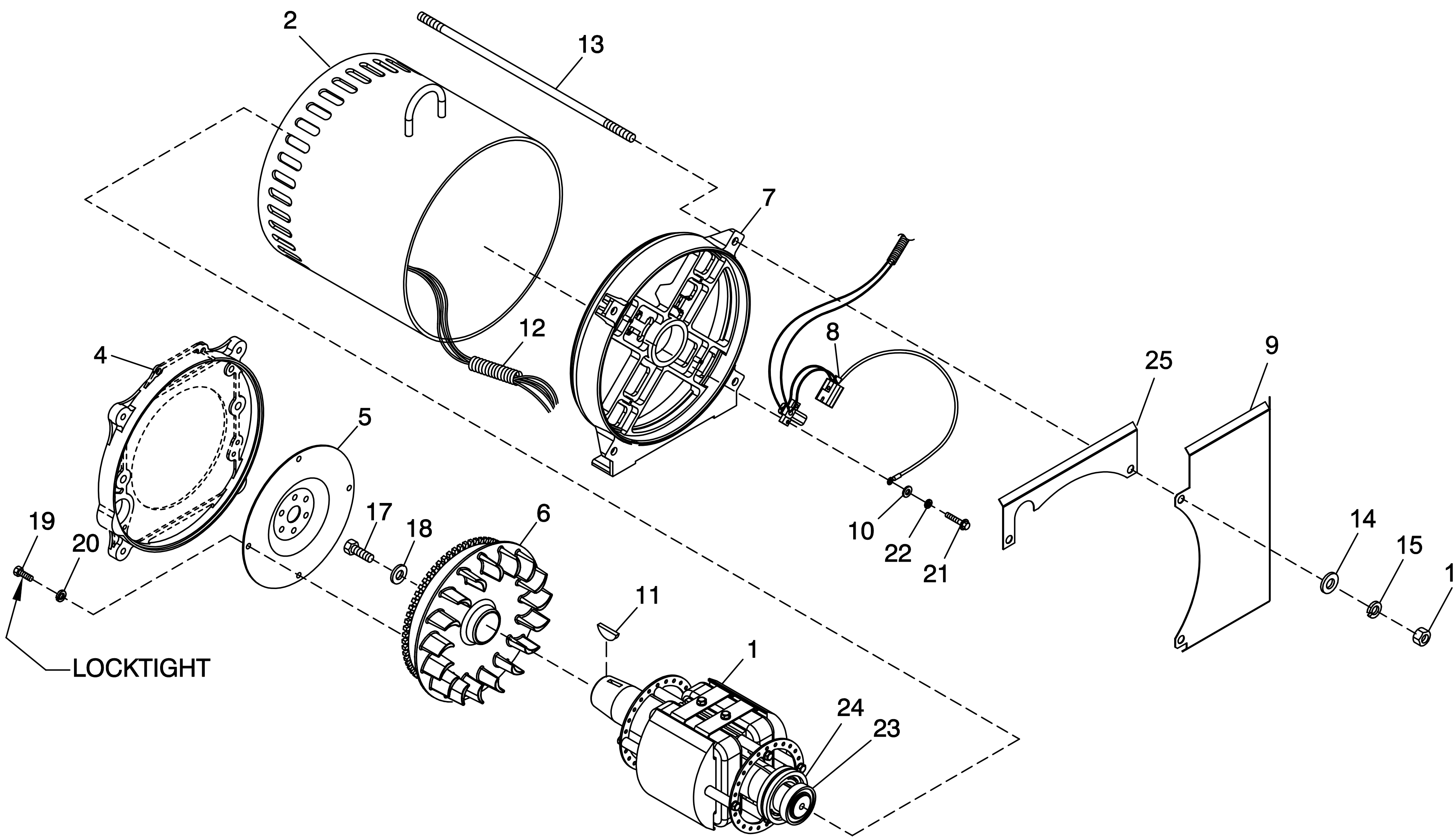
ITEM	PART #	QTY.	DESCRIPTION
5)			UL CIRCUIT BREAKER (QJ-2P)
A	0F8137	1	COVER QJ 2P FRM CB
B	065469	1	DECAL, DANGER HIGH VOLTAGE
C	0E7994	-	CB 0225A 240V 2P S QJ22
D	0F8136	1	COVER QJ 2P CB DISH
E	036261	4	RIVET POP .125 X .275 SS
F	022473	2	WASHER FLAT 1/4-M6 ZINC
G	022097	2	WASHER LOCK M6-1/4
H	022127	2	NUT HEX 1/4-20 STEEL
J	0F8139	1	INSUL CB 2P QJ
K	0C2454	7	SCREW THF M6-1 X 16 N WA Z/JS
L	022237	2	WASHER LOCK 3/8
M	048527	2	SCREW SHC 3/8-16 X 3/4 G8.8 NZ
N	029289	1	TAPE ELEC 1/2 FOAM (AS REQ'D)
P	022770	2	SCREW RHM 1/4-20 X 3
Q	0F1733	1	DECAL CUSTOMER CONNECT INSIDE
6)			UL CIRCUIT BREAKER (225AF)
A	0F4185	1	COVER CB C2-C4 225AF
B	065469	1	DECAL DANGER HIGH VOLTAGE
C	0F4165$	REF	CIRCUIT BREAKERS 200A FRAME
D	0F4186	1	COVER CB DISH 225AF
E	036261	4	RIVET POP .125 X .275 SS
F	053640	4	SCREW RHM #8-32 X 3-1/4
G	038150	4	WASHER FLAT #8 ZINC
H	022264	4	WASHER LOCK #8-M4
J	022471	4	NUT HEX #8-32 STEEL
K	029289	2	TAPE ELEC 1/2 FOAM
L	0F1733	1	DECAL CUSTOMER CONNECT INSIDE
M	022129	9	WASHER LOCK M8-5/16
N	0F8432	1	INSULATOR CB 225AF
P	0C2454	7	SCREW THF M6-1 X 16 N WA Z/JS
R	0F8451	3	LUG SLDLSS 300 MCM-6 AL/CU
S	049897	9	SCREW SHC M8-1.25 X 20 G8
T	022145	6	WASHER FLAT 5/16-M8 ZINC
U	045771	3	NUT HEX M8-1.25 G8 CLEAR ZINC
V	0F8843	3	BUS BAR 200A LUG ADAPTOR
(1) W	W/CB	2	TERMINAL COVER CB
7)			UL CIRCUIT BREAKER (400AF)
A	0F4187	1	COVER CB C2-C4 400AF
B	065469	1	DECAL DANGER HIGH VOLTAGE
C	0F4166$	REF	CIRCUIT BREAKERS 400A FRAME
D	0F1733	1	DECAL CUSTOMER CONNECT INSIDE
E	042419	4	SCREW RHM 10-32 X 4
F	023897	4	WASHER FLAT #10 ZINC
G	022152	4	WASHER LOCK #10
H	022158	4	NUT HEX #10-32 STEEL
J	0C2454	7	SCREW THF M6-1 X 16 N WA Z/JS
K	029289	1	TAPE ELEC 1/2 FOAM
(2) L	052647	2/3	SCREW SHC M10-1.5 X 25 G12.9
(2) M	046526	2/3	WASHER LOCK M10
N	W/CB	3	BUS BAR CB ADAPTER 225-400 A
P	0A7822	3	LUG SLDLSS 600/250-1/0 X 1/4-28
(1) S	W/CB	2	TERM COVER CB
T	023334	6	SCREW HHC 1/4-28 X 1/2 G5
U	022097	6	WASHER LOCK M6-1/4
V	022473	6	WASHER FLAT 1/4-M6 ZINC
(2) W	W/CB	2/3	SCREW SHC M10-1.5 X 25 G12.9
(2) X	W/CB	2/3	WASHER LOCK M10

ITEM	PART #	QTY.	DESCRIPTION
8)			NEUTRAL BLOCK 390 / 200-400A
A	0D5466	2	BUS BAR NEUTRAL BLOCK 390
B	039287	1	SCREW HHC M8-1.25 X 45 G8.8 FT
C	022145	1	WASHER FLAT 5/16-M8 ZINC
D	022129	1	WASHER LOCK M8-5/16
E	045771	1	NUT HEX M8-1.25 G8 YEL CHR
F	045335	2	SCREW HHC 1/4-28 X 3/4 G5
G	083896	2	WASHER LOCK 1/4-M6 SS
H	0A7822	1	LUG SLDLSS 600/250-1/0 X 1/4-28

(1) HARDWARE FOR MTG. CB TERMINAL COVERS IS SUPPLIED WITH CIRCUIT BREAKERS.

(2) 2/3 QTY. 2 POLE & 3 POLE CB.

GROUP A



EXPLODED VIEW:
CPL ALTERNATOR DIRECT EXCITATION
DRAWING #: 0F9803

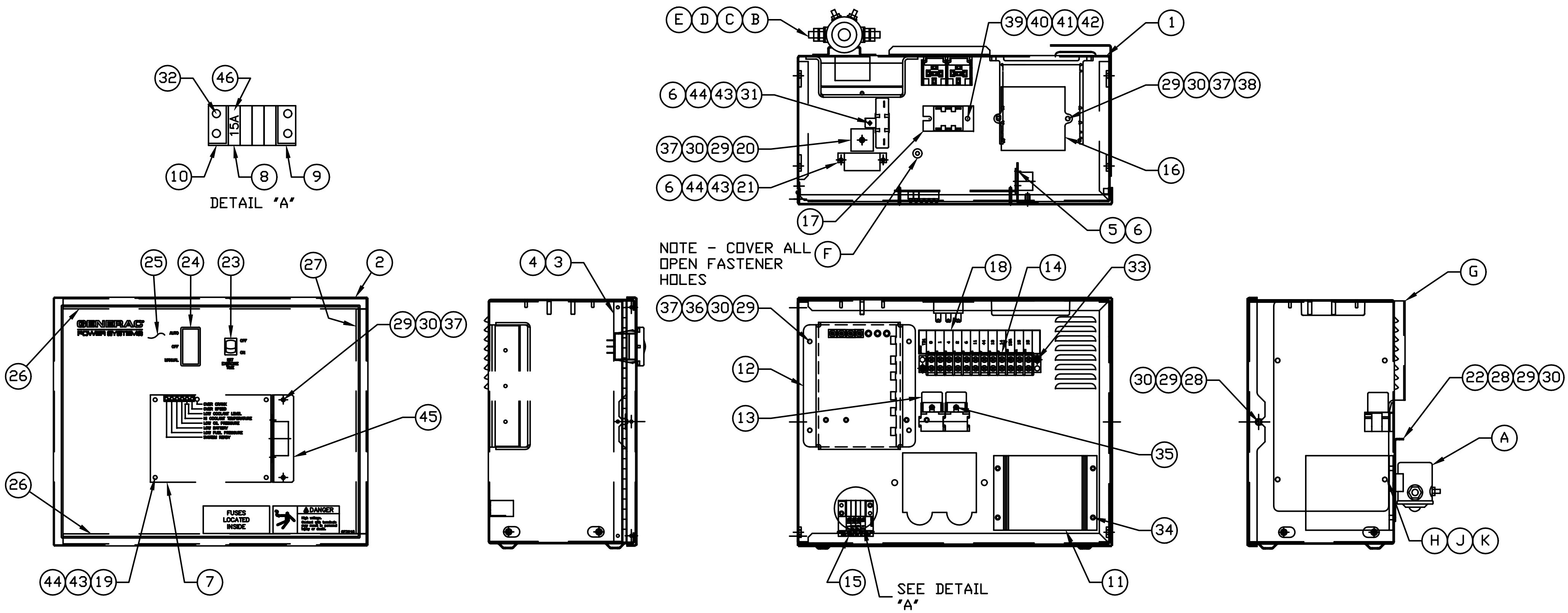
REVISION: G-7799-C
DATE: 4/19/06

EXPLODED VIEW: CPL ALTERNATOR DIRECT EXCITATION
DRAWING #: 0F9803
APPLICABLE TO:

GROUP A

ITEM	PART #	QTY.	DESCRIPTION
1	0G0056	1	RTR-2390--35KD1 CPL
	0G1155	1	RTR-2390--35KD1 CPL (G2)
	0F9677	1	RTR-2390--45KD1 CPL
	0G0959	1	RTR-2390--45KD1 CPL (G2)
2	0G0057	1	STR-2390--35AD1 CPL
	0F9664	1	STR 390 45K 2P 1PH DIRECT
	0G0058	1	STR-2390--35KD1 CPL
	0G0184	1	STR 390 45KW 2P 3PH 480V
	0G0059	1	STR-2390--35GD1 CPL
	0G0183	1	STR 390 45KW 2P 3PH 208V
3	0C9708	REF	INSTR HYPOT TEST (NOT SHOWN)
4	SEE ENGINE EV	REF	ENGINE ADAPTER
5	SEE ENGINE EV	REF	FLEXPLATE
6	0F5767B	1	ASSY FLYWHEEL CPL W/40MM FAN B
7	0E5706	1	REAR BEARING CARRIER 390/DRCT
8	0F7874	1	ASSY BRUSH HOLDER 390/HSB
9	0G0587	1	GUARD REAR BEARING CARRIER
10	038150	4	WASHER FLAT #8 ZINC
11	023454	1	KEY WOODRUFF #E
12	077043F	1	CONDUIT FLEX 1-1/4" (30" LG)
13	04576100BU	4	STUD M14-2.0 570 G5 ZINC
14	052646	4	WASHER FLAT M14
15	043123	4	WASHER LOCK M14
16	051779	4	NUT HEX M14-2.0 G8 YEL CHR
17	0A2601	1	SCREW HHC M16-2.0 X 45 G8.8
18	0A2602	1	WASHER FLAT .688 ID X 3.25 OD
19	0F8408	4	SCREW HHC M10-1.50 X 16 G10.9
20	046526	4	WASHER LOCK M10
21	0C3993	4	SCREW HHTT M4-0.7 X 25 BP
22	022264	4	WASHER LOCK #8-M4
23 *	047248	1	BALL BEARING-45 MM
24 *	070892	1	SLIP RING MACHINED
25	0G0588	1	GUARD REAR BEARING CARRIER

* ROTOR REPLACEMENT PARTS



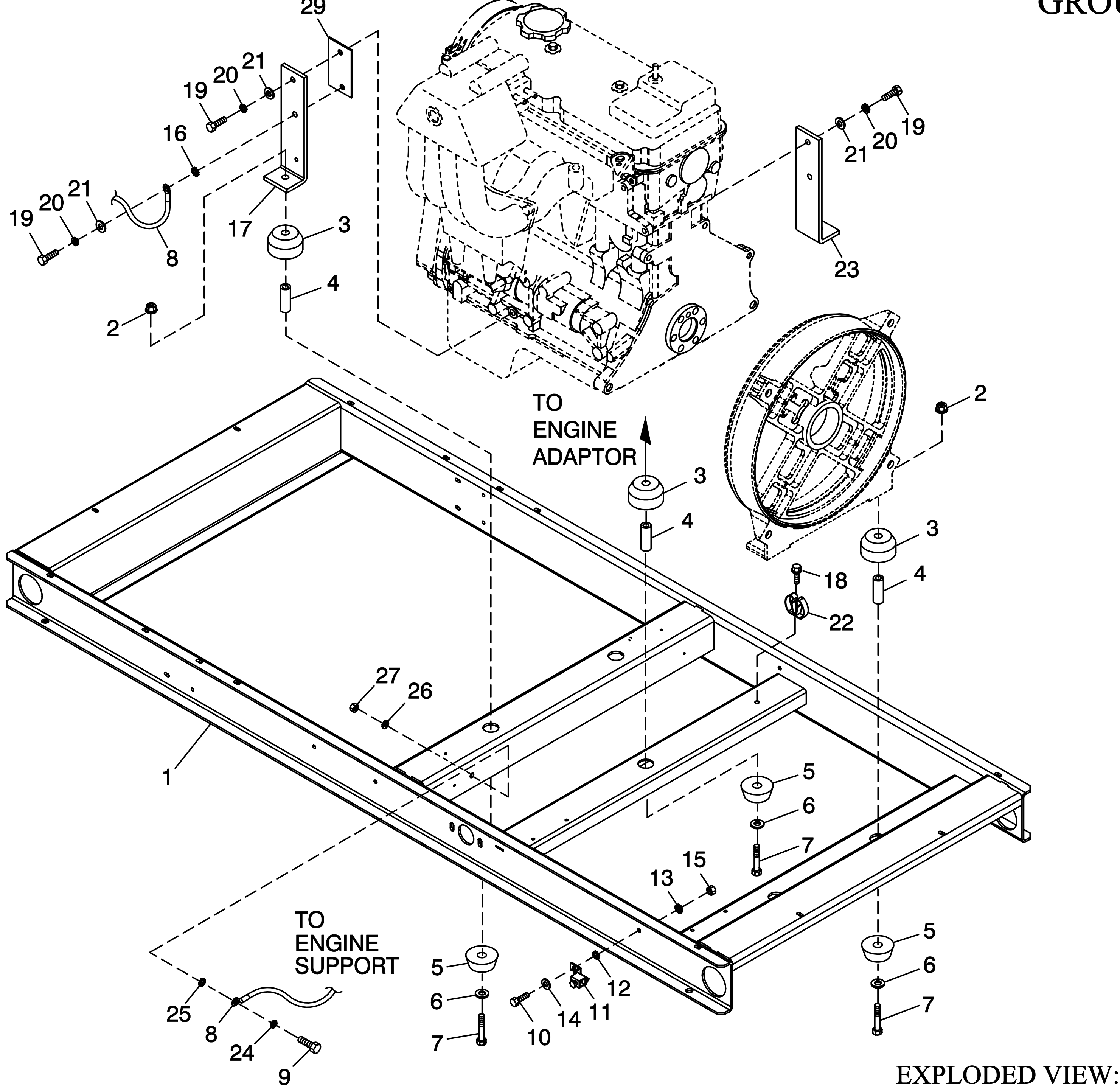
EXPLODED VIEW:
R-200 3600 RPM
DRAWING #: 0F9696D

REVISION:
DATE: 12/9/05

EXPLODED VIEW: R-200 3600 RPM
DRAWING #: 0F9696D
APPLICABLE TO:

GROUP B

ITEM	PART #	QTY.	DESCRIPTION
			COMPONENTS INCLUDED IN 0F9696E
1	0F1823A	1	ENCL HSB CONTROL PANEL
2	0F3078	1	COVER CONTROL PANEL
3	0F2606	1	HINGE CONTINUOUS H-PANEL
4	036261	6	RIVET POP .125 X .275 SS
5	043181	4	SCREW PHM M3-0.5 X 10MM
6	052777	7	WASHER FLAT M3
7	0F8710B	1	ASSY PCB CPL2 CTRLR 3600 RPM
8	0F1262	4	HOLDER, FUSE WICKMANN 178.6150
9	0F1263	1	ADPTR,RH SIDE WICKMAN 178.6191
10	0F1264	1	ADPTR,LH SIDE WICKMAN 178.6192
11	0F1725C	1	ASSY PCB 2AMP 12V UL BATT CHGR
12	067680	1	ASSY VOLTAGE REGULATOR 60HZ
13	0E6875A	2	RELAY, 12VDC C FORM W/DIODE
14	055911	1	BLOCK TERM 20A 12 X 6 X 1100V
15	0F5459	1	DECAL CPL CONTROL PANEL FUSES
16	0E3161	1	ASSY PCB BOSCH GOV DRIVER
17	0F5090	1	ASSY PCB SCR BRIDGE
18	0F5462	1	DECAL CPL 3.9L TB1
19	0A5062J	4	SPACER 9.5H 3.2 ID
20	029673	1	DIO BRIDGE 25A 600V
21	048467	1	CIRCT BRK 7 X 1 ETA 46-500-P
22	0F1958	1	PLATE,HARNESS CLAMP
23	082573	1	SWITCH RKR DPST 125V SPD
24	0E4494	1	SWITCH RKR DPDT ON-OFF-ON
25	0F3215	1	DECAL, CONTROL HSB
26	0F6305	3	SEAL COVER 3.18X12.7X382
27	0F6305A	1	SEAL COVER 3.18X12.7X283
28	0F5886	3	SCREW HHPM M5-0.8 X 12
29	051713	12	WASHER FLAT M5
30	049226	12	WASHER LOCK M5
31	0F5752F	1	RES WW 15R 5% 25W QK CONN
32	0F5884	2	SCREW PHTT M3.5-0.6 X 10
33	0F5896	2	SCREW PHTT M3.5-0.6 X 16
34	0C2265	4	SCREW PHTT M4-0.7 X 12 ZYC
35	0C3990	2	SCREW PHTT M4-0.7 X 10 ZYC
36	091526	4	SCREW PPHM M5-0.8 X 12 ZNC
37	051716	9	NUT HEX M5-0.8 G8 CLEAR ZINC
38	079224	2	SCREW PPHM M5-0.8 X 30 SS
39	075476	2	SCREW PPHM M4-0.7 X 16
40	043180	2	WASHER FLAT M4
41	022264	2	WASHER LOCK #8-M4
42	051715	2	NUT HEX M4-0.7 G8 YEL CHR
43	043182	7	WASHER LOCK M3
44	051714	7	NUT HEX M3-0.5 G8 YEL CHR
45	0F3192	1	SUPPORT ANGLE PCB
46	0E7403C	1	FUSE ATO TYPE 15 AMP (BLUE)
47	0F9785	1	HARN 3600RPM R200 CONTROL PNL
			COMPONENTS INSTALLED PER THIS DRAWING
A	056739	1	RELAY SOLENOID 12VDC PNL MNT
B	022287	2	SCREW HHC 1/4-20 X 3/4 G5
C	022473	4	WASHER FLAT 1/4-M6 ZINC
D	022097	2	WASHER LOCK M6-1/4
E	022127	2	NUT HEX 1/4-20 STEEL
F	0F6145	A/R	SEAL WEATHER .45"DIA
G	0F2627A	1	COVER CONTROL PANEL SIDE
H	091526	4	SCREW PPHM M5-0.8 X 12 ZNC
J	049226	4	WASHER LOCK M5
K	051713	4	WASHER FLAT M5



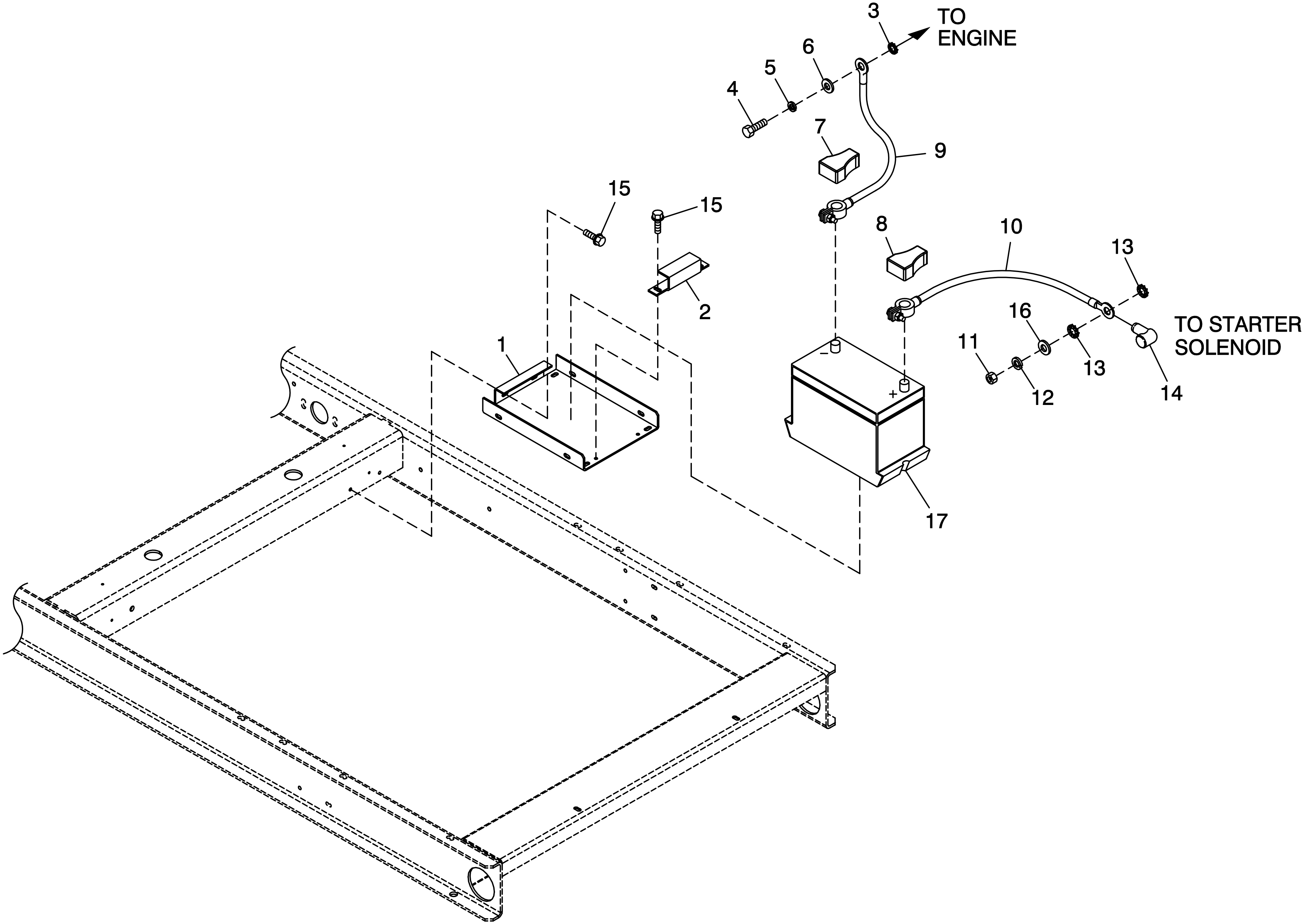
EXPLODED VIEW:
MOUNTING BASE 2.4L C2
DRAWING #: 0F9807

REVISION: G-7801-B
DATE: 3/31/06

EXPLODED VIEW: MOUNTING BASE 2.4L C2
DRAWING #: 0F9807
APPLICABLE TO:

GROUP C

ITEM	PART #	QTY.	DESCRIPTION
1	0F9517	1	WELDMENT FRAME 2.4L C2
2	052860	4	NUT FLANGED HEX M12-1.75
3	052251	5	DAMPENER VIBRATION 40 BLUE
4	052257	5	SPACER .49 X .62 X 1.87 PWDR/ZNC
5	052252	5	DAMPENER VIBRATION
6	052259	5	WASHER FLAT M12
7	052891	5	SCREW HHC M12-1.75 X 80 G8.8
8	0536210410	1	ASSY WIRE 14.00"
9	042909	1	SCREW HHC M8-1.25 X 30 G8.8
10	047411	1	SCREW HHC M6-1.0 X 16 G8.8
11	055414	1	LUG SLDLSS #2-#8 X 17/64 CU
12	022447	1	WASHER SHAKEPROOF INT 1/4
13	022097	1	WASHER LOCK M6-1/4
14	022473	2	WASHER FLAT M6-1/4 ZINC
15	049813	1	NUT HEX M6 -1.0 G8 YEL CHR
16	022261	1	WASHER SHAKEPROOF INT 3/8
17	0F9597A	1	SUPPORT LH ENGINE 2.4L
18	045764	1	SCREW HHTT M4-0.7 X 8 BP
19	062963	4	SCREW HHC M10-1.25 X 30 G8.8
20	022302	4	WASHER LOCK 7/16
21	022131	4	WASHER FLAT 3/8-M10 ZINC
22	065852	1	SPRING CLIP HOLDER .37-.62
23	0F9597	1	SUPPORT RH ENGINE 2.4L
24	022129	1	WASHER LOCK M8-5/16
25	026204	1	WASHER SHAKEPROOF INT 5/16
26	022145	1	WASHER FLAT 5/16-M8 ZINC
27	045771	1	NUT HEX M8-1.25 G8 CLEAR ZINC
29	0F9596	1	SPACER ENGINE MOUNT (2.4L G1)
	0F9596A	1	SPACER LH ENGINE MOUNT (2.4L G2)

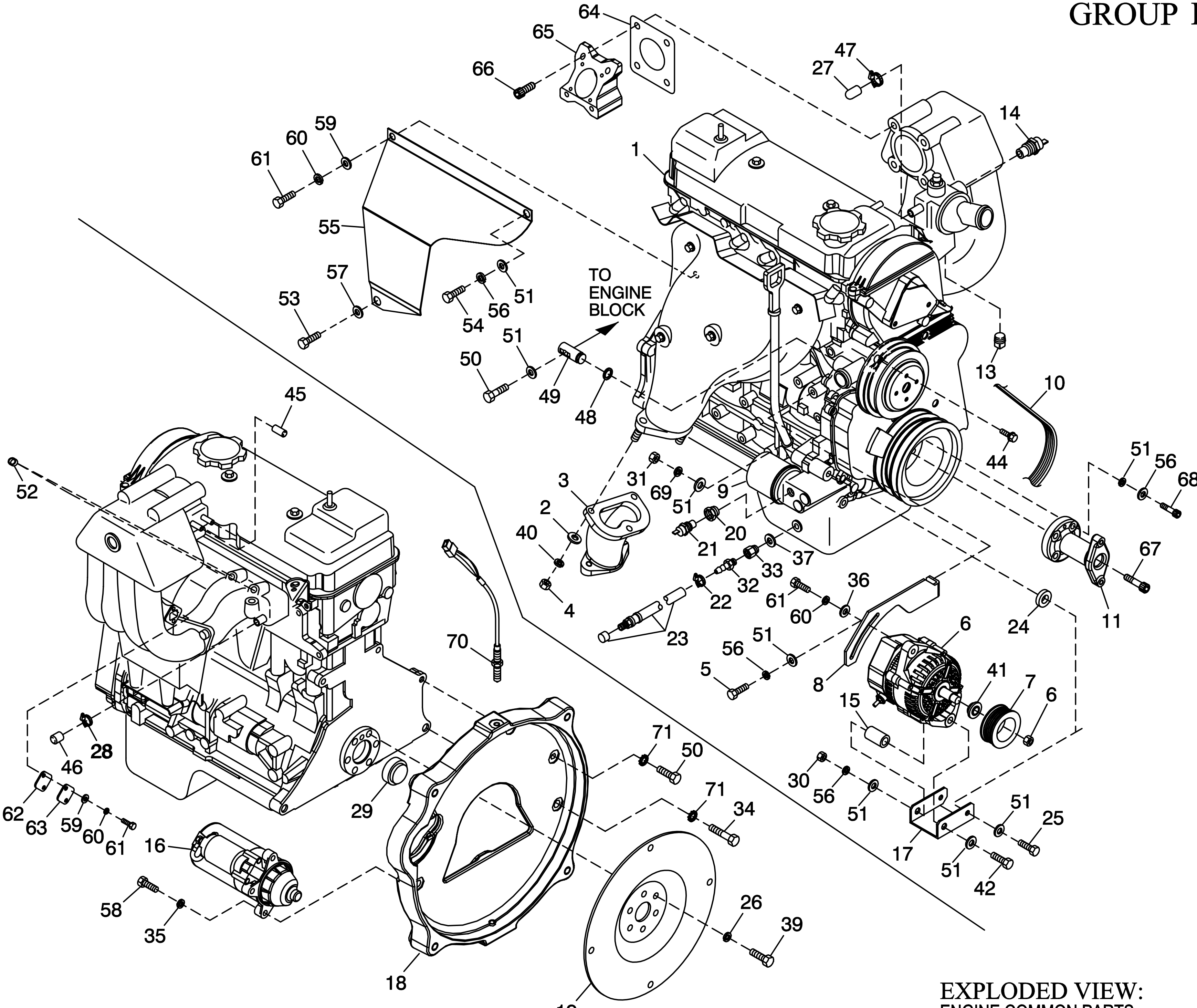


EXPLODED VIEW:
BATTERY 2.4L CPL
DRAWING #: 0F9813

EXPLODED VIEW: BATTERY 2.4L CPL
DRAWING #: 0F9813
APPLICABLE TO:

GROUP C

ITEM	PART #	QTY.	DESCRIPTION
1	0F3408B	1	BATTERY TRAY C1 CPL
2	0F3411	1	STRAP BATTERY RETAINMENT
3	025507	REF	WASHER SHAKEPROOF EXT 7/16 STL
4	052212	REF	SCREW HHC M10-1.25 X 25 G8.8
5	046526	REF	WASHER LOCK M10
6	022131	REF	WASHER FLAT 3/8-M10 ZINC
7	050331A	REF	BATTERY POST COVER RED +
8	050331	REF	BATTERY POST COVER BLACK -
9	038805Y	1	CABLE BATTERY BLACK #1 X 18.00
10	03880400AE	1	CABLE BATT RED #1 X 18.00
11	045771	REF	NUT HEX M8-1.25 G8 YEL CHR
12	022129	REF	WASHER LOCK M8-5/16
14	0F3976	1	BOOT CONTACTOR CABLES
15	0C2454	4	SCREW THF M6-1 X 16 N WA Z/JS
16	022145	REF	WASHER FLAT 5/16-M8 ZINC
17	077483	REF	BATTERY 12VDC 75-AH 26



EXPLODED VIEW:
ENGINE COMMON PARTS
DRAWING #: 0F9805

REVISION: G-7647-C
DATE: 3/13/06

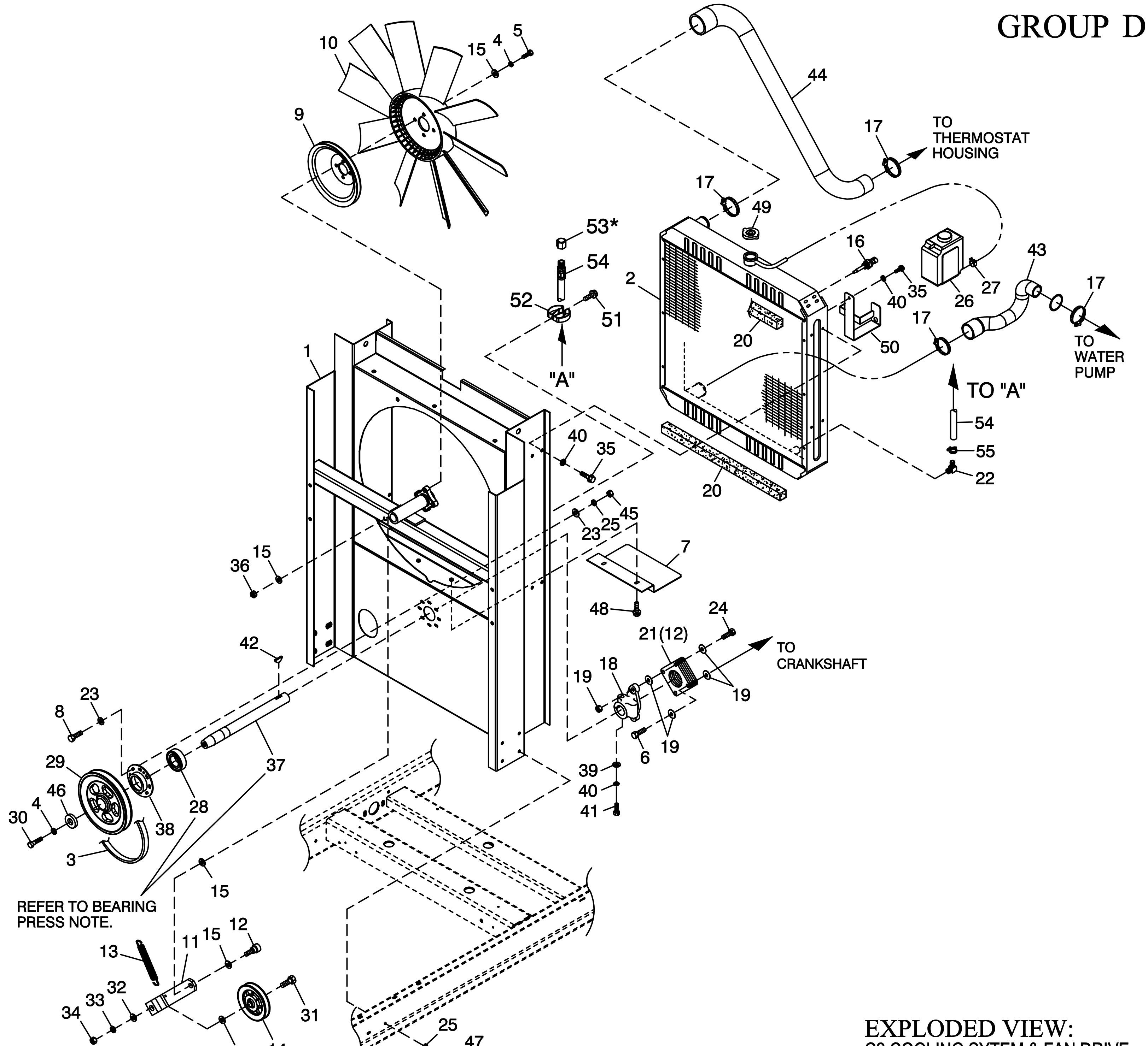
EXPLODED VIEW: ENGINE COMMON PARTS
DRAWING #: 0F9805

APPLICABLE TO:

GROUP D

ITEM	PART #	QTY.	DESCRIPTION
1	0G0158	1	ENGINE 2.4L G1
2	022131	3	WASHER FLAT 3/8-M10 ZINC
3	0F9585	1	EXHAUST ADAPTER 2.4L MACH
4	046525	3	NUT HEX M10-1.25 G8 YEL CHR
5	052212	1 (REF)	SCREW HHC M10-1.25 X 25 G8.8
6	0E9868A	1 (REF)	ALTERNATOR DC W/OUT PULLEY
7	0F3216B	1 (REF)	PULLEY 117 OD DC ALTERNATOR
8	0G0115	1 (REF)	BRACKET TENSIONER
9	0A86220296	(REF)	CARTRIDGE OIL FILTER
10	0D3488Q	1 (REF)	BELT SERPENTINE 44.13"
11	0F9501	1 (REF)	ADAPTER 2.4L CRANKSHAFT MACH

ITEM	PART #	QTY.	DESCRIPTION
13	026925	1 (REF)	PLUG STD PIPE 3/8 STEEL SQ HD
14	0A6751	1 (REF)	SWITCH HI-TEMP 245D X 3/8 NPT
15	0G0638	1 (REF)	SPACER ALTERNATOR 2.4L G1
16	0E9747	1	STARTER 12 VOLT
17	0F9793	1 (REF)	BRACKET DC ALTERNATOR
18	0F9420	1	ADAPTER ENGINE 2.4L MACHINE
19	0F3903F	1	FLEX PLATE 2 POLE 2.4 G1
20	042574	1 (REF)	ADAPTOR 1/8 NPTF TO 1/8 BSPT
21	0A8584	1 (REF)	SWITCH OIL PRESSURE 10 PSI 2 POL
22	0C7649	1	CLAMP HOSE .38-.87
23	069860E	1	HOSE DRAIN ASSY 28"
24	0G0136	1 (REF)	SPACER ALTERNATOR 2.4L G1
25	022400	1 (REF)	SCREW HHC 3/8-16 X 3 G5
26	063076	6	WASHER FLAT .531 ID X 1.062 OD
27	077996	1 (REF)	CAP HOSE
28	057823	1 (REF)	CLAMP HOSE #10 .56-1.06
29	0F9486	1	ADAPTER FLEX PLATE PILOT 2.4L
30	045772	1 (REF)	NUT HEX M10-1.5 G8 YEL CHR
31	022241	1 (REF)	NUT HEX 3/8-16 STEEL
32	043790	1	BARBED EL 90 3/8 NPT X 3/8
33	057765	1	ADAPTER M14-1.50 X 3/8 NPT
34	052830	2	SCREW HHC M10-1.25 X 45 G8.8
35	022129	3	WASHER LOCK M8-5/16
36	022145	1 (REF)	WASHER FLAT 5/16-M8 ZINC
37	057772	1	WASHER NYLON .565
39	0G0114	6	SCREW HHC M12-1.25 X 15 G10.9
40	046526	3	WASHER LOCK M10
41	0F3217	1 (REF)	SPACER DC ALTERNATOR PULLEY
42	051736	1 (REF)	SCREW HHC M10-1.5 X 80 G8.8
43	0F9836	1	HARN ENG 2.4L R-200 G1 (NOT SHOWN)
44	051730	1 (REF)	SCREW HHC M8-1.25 X 60 G8.8
45	0G0145	1 (REF)	CAP VACUUM 5/32"
46	077996	1 (REF)	CAP ANTIFREEZE RUBBER
47	0C7649	1 (REF)	CLAMP HOSE .38-.87
48	0G0141	1 (REF)	O-RING 5/8" ID X 7/8" OD BUNA-N
49	0F9792	1 (REF)	PLUG WATER PUMP
50	062963	3	SCREW HHC M10-1.25 X 30 G8.8
51	022131	11 (REF)	WASHER FLAT 3/8-M10 ZINC
52	0D3973	4 (REF)	PLUG EXPANSION 16MM TWINREG
53	068485	1 (REF)	SCREW HHC M12-1.25 X 20 G8.8
54	098544	1 (REF)	SCREW HHC M10-1.25 X 16 G10.9
55	0G0143	1 (REF)	HEAT SHIELD 2.4L G1
56	046526	7 (REF)	WASHER LOCK M10
57	049808	1 (REF)	WASHER FLAT M12
58	049821	3	SCREW SHC M8-1.25 X 30 G12.9
59	022145	3 (REF)	WASHER FLAT 5/16-M8 ZINC
60	022129	4 (REF)	WASHER LOCK M8-5/16
61	042907	4 (REF)	SCREW HHC M8-1.25 X 16 G8.8
62	0G0344	1 (REF)	GASKET INTAKE COVER G1
63	0G0343	1 (REF)	COVER INTAKE G1
64	0G0180	1 (REF)	GASKET- THROTTLE BODY
65	0F9723	1 (REF)	INTAKE ADAPTER MACHINED
66	040976	4 (REF)	SCREW SHC M8-1.25 X 20 G12.9
67	0G0149	1 (REF)	SCREW SHC M14-1.5 X 35 G10.9
68	039414	4 (REF)	SCREW HHC M8-1.25 X 35 G8.8
69	022237	1(REF)	WASHER LOCK 3/8
70	0D2244M	1	ASSY MAGPICKUP(3/8-24 MALE)
71	025507	5	WASHER SHAKEPROOF EXT 7/16 STL



EXPLODED VIEW:
C2 COOLING SYTEM & FAN DRIVE
DRAWING #: 0F9806

EXPLODED VIEW: C2 COOLING SYTEM & FAN DRIVE
DRAWING #: 0F9806

GROUP D

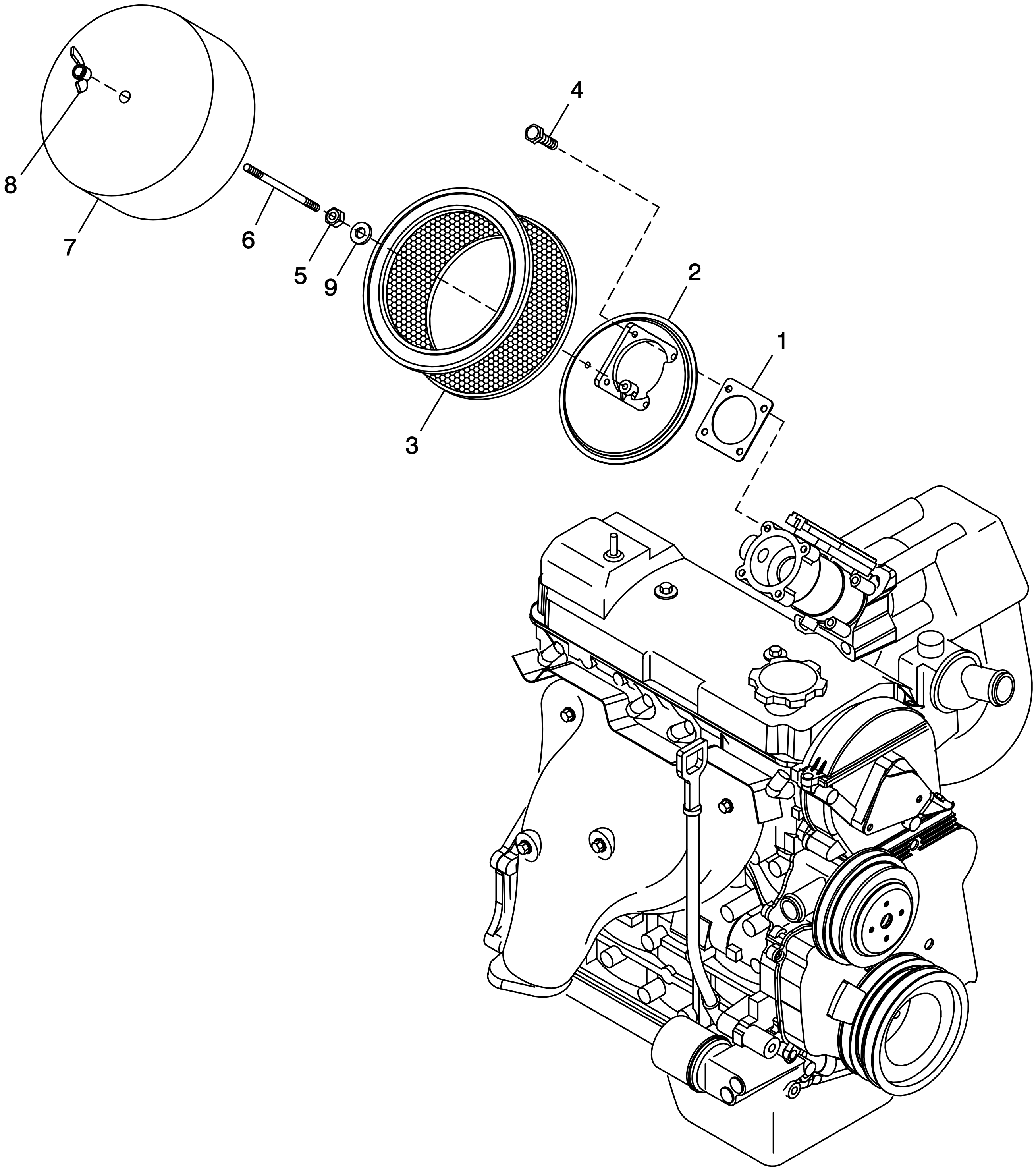
APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0F9529	1	WELDMENT RADIATOR SUPPORT 2.4L
2	0F2608	1	RADIATOR 598 X 568 X 49 CPL RH
3	0F5263	1	V-BELT 31/64" X 57-3/8"
4	046526	5	WASHER LOCK M10
5	059981	4	SCREW HHC M10-1.5 X 30 G10.9
6	022222	2	SCREW HHC 5/16-24 X 1-1/2 G5
7	0F5050	1	SHIELD RADIATOR C5
8	042568	8	SCREW HHC M6-1.0 X 20 G8.8
9	0F2573	1	PULLEY FAN V-GROOVE 9"
10	0F4011	1	FAN COOL 22" DIA 10 BLADE LH

ITEM	PART #	QTY.	DESCRIPTION
11	0F2572	1	ARM TENSIONER
12	0F5689	1	SCREW SHC SHLDR LKG M8X16LG
13	0F2862	1	SPRING TENSION CPL
14	0F2560	1	PULLEY V-BELT 4" FLANGED
15	022131	7	WASHER FLAT 3/8-M10 ZINC
16	0E2507	1	PROBE COOLANT LEVEL 3/8NPTF
17	035685	4	CLAMP HOSE #28 1.32-2.25
18	0F2561	1	HUB FLEX PLATE
19	0C8145	8	WASHER FLEX (THIN)
20	052250	2	TAPE FOAM 1 X 1 (26.75" LG)
21	0C7043	12	DISK FLEX
22	043790	1	BARBED EL 90 3/8 NPT X 3/8
23	022473	16	WASHER FLAT 1/4-M6 ZINC
24	0C8146	2	SCREW HHC 5/16-24 X 1.124
25	022097	16	WASHER LOCK M6-1/4
26	076749	1	TANK COOLANT RECOVERY
27	048031C	1	CLAMP HOSE BAND 1/4
28	031971	1	BEARING #6205 2NSE C3 E SRI2 S
29	0F4496	1	PULLEY 4.5" DIA MACHINED
30	042911	1	SCREW HHC M10-1.5 X 30 G8.8
31	0F2872	1	SCREW HHC 1/2-13 X 2" G8
32	022304	2	WASHER FLAT 1/2 ZINC
33	022195	1	WASHER LOCK 1/2
34	022196	1	NUT HEX 1/2-13 STEEL
35	0F8651	9	SCREW HHFC M8-1.25 X 20 W/M6
36	045772	1	NUT HEX M10-1.5 G8 YEL CHR
37	0F9867	1	SHAFT FAN DRIVE
38	0F2461	1	RETAINER BEARING
39	022145	1	WASHER FLAT 5/16-M8 ZINC
40	022129	10	WASHER LOCK M8-5/16
41	039414	1	SCREW HHC M8-1.25 X 35 G8.8
42	082774	1	KEY WOODRUFF 4 X 19D
43	0F9982	1	HOSE LOWER RADIATOR
44	0F9781	1	HOSE UPPER RADIATOR 2.4L HYUND
45	049813	8	NUT HEX M6 X 1.0 G8 YEL CHR
46	052644	1	SPACER .5 X 1.5 X .25 STL/ZINC
47	0C8566	8	SCREW HHFC M6-1.0 X 20 G8.8
48	0C2454	2	SCREW THF M6-1 X 16 N WA Z/JS
49	090283	1	CAP RADIATOR 13 PSI
50	080713	1	BRACKET COOLANT TANK
51	045764	1	SCREW HHTT M4-0.7 X 8 BP
52	065852	1	SPRING CLIP HOLDER .37-.62
53 *	069811	REF.	CAP HEX 1/4 NPT BRASS
54	069860C	1	HOSE OIL DRAIN ASSY 21"
55	0C7649	1	CLAMP HOSE .38-.87

* ITEM 53 IS INCLUDED WITH ITEM 64.

BEARING PRESS NOTE:
APPLY LOCTITE 620 BEARING RETAINMENT COMPOUND TO BEARING SURFACE ON ITEM 37 PRIOR TO PRESSING ITEM 28 ONTO ITEM 37. ALSO APPLY LOCTITE 620 BEARING RETAINMENT COMPOUND TO THE OUTSIDE OF 28 PRIOR TO INSTALLING ITEM 28 INTO ITEM 38.



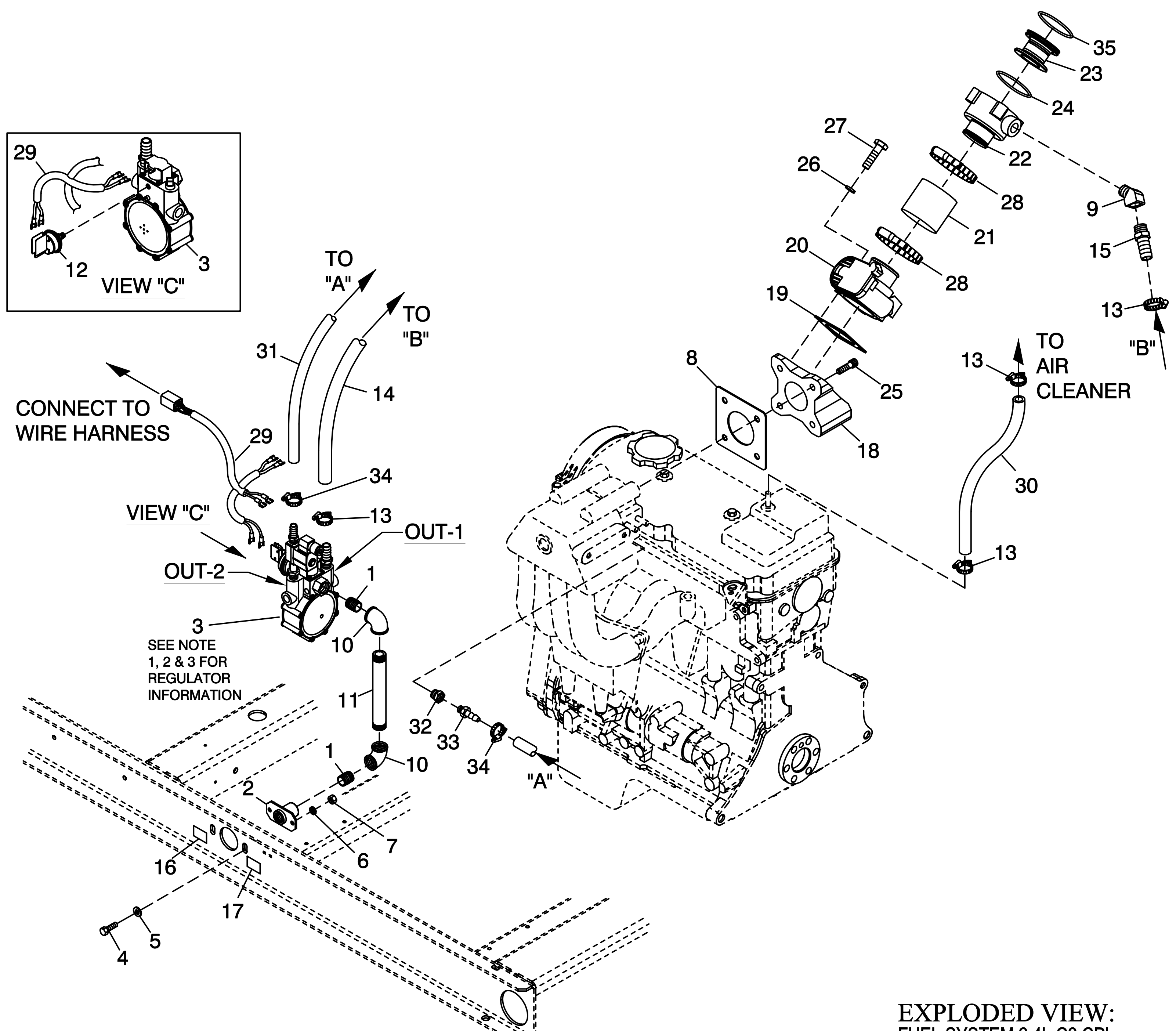
EXPLODED VIEW:
AIR CLEANER C2
DRAWING #: 0F9809

EXPLODED VIEW: AIR CLEANER C2
DRAWING #: 0F9809

APPLICABLE TO:

GROUP D

ITEM	PART #	QTY.	DESCRIPTION
1	0E6586	1	GASKET BOSCH 32 & 40
2	0E0519A	1	ADAPTER CARBURETOR W/PVC CONN
3	0C8127	1	ELEMENT AIR CLEANER
4	052619	4	SCREW HHC M5-0.8 X 20 G8.8
5	022127	1	NUT HEX 1/4-20 STEEL
6	062974	1	STUD TH 1/4-20 X 4-1/2 G2 ZNC
7	0G0190	1	PLATE, AIR CLEANER TOP 2.4L
8	037561	1	NUT WING 1/4-20 NYLK
9	022097	1	WASHER LOCK M6-1/4



EXPLODED VIEW:
FUEL SYSTEM 2.4L C2 CPL
DRAWING #: 0F9810

REVISION: G-7590-B
DATE: 3/7/06

EXPLODED VIEW: FUEL SYSTEM 2.4L C2 CPL
DRAWING #: 0F9810
APPLICABLE TO:

GROUP E

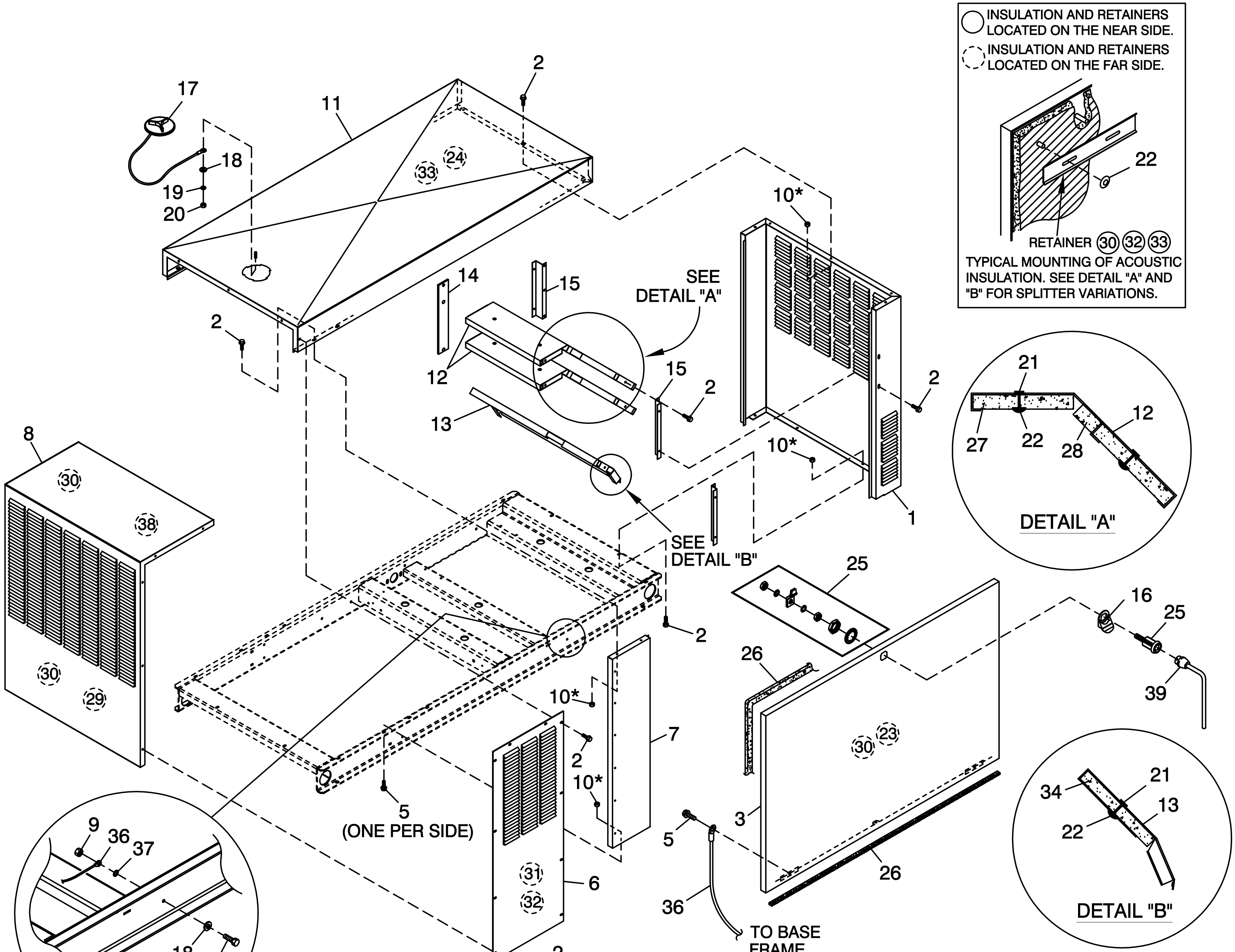
ITEM	PART #	QTY.	DESCRIPTION
1	026915	2	NIPPLE CLOSE 3/4 X 1.375
2	075580	1	FLANGE FUEL INLET
3	0F6390B	1	REGULATOR ASSY 2.4L
4	039253	2	SCREW HHC M8-1.25 X 20 G8.8
5	022145	2	WASHER FLAT 5/16-M8 ZINC
6	022129	2	WASHER LOCK M8-5/16
7	045771	2	NUT HEX M8-1.25 G8 CLEAR ZINC
8	0G0180	1 (REF)	GASKET- THROTTLE BODY
9	0E8286	1	STREET EL 45D 1/2 NPT BRASS
10	026812	2	ELBOW 90D 3/4 NPT
11	0F8379	1	NIPPLE PIPE 3/4 NPT X 7
12	0F3869	1 (REF)	SWITCH, PRESSURE GAS 5" RISE (INCLUDED WITH I/N 3)
13	057823	4	CLAMP HOSE #10 .56 - 1.06
14	059057	1	HOSE 3/4 ID SAE-30R2 (30.0" LG)
15	044118	1	BARBED STR 1/2NPT X 5/8
16	0D1509	1	DECAL INLET PRESSURE
17 *	050279	1	DECAL FUEL INLET NG (NATURAL GAS APPLICATION)
	050280	1	DECAL FUEL INLET LPG (LP VAPOR APPLICATION)
18	0F9723	1 (REF)	INTAKE ADAPTER MACHINED
19	0E6586	1	GASKET BOSCH 32
20	0E4394	1	ACTUATOR BOSCH 40 GOVERNOR (45KW)
	0E4395	1	ACTUATOR BOSCH 32 GOVERNOR (35KW)
21	040105	1	HOSE COOL 2IN ID 20R4 (45KW)
	057753B	1	HOSE 1.5 ID X 2 LG 20R4 (35KW)
22	0E6382B	1	VENTURI HOLDER W/40MM ACTUATOR (45KW)
	0E6382C	1	VENTURI HOLDER W/32MM ACTUATOR (35KW)
23	0F7790E	1	VENTURI THROTTLE 26MM
24	0E7121	1	O-RING 47.625 ID X 2.38 WIDTH
25	040976	4 (REF)	SCREW SHC M8-1.25 X 20 G12.9
26	022097	4	WASHER LOCK M6-1/4
27	051751	4	SCREW HHC M6-1.0 X 50 G8.8
28	035685	2	CLAMP HOSE #28 1.32-2.25
29	0F6155	1	HARNESS, CPL FUEL JUMPER
30	047290	1	HOSE 3/8 ID SINGLE BRAID (10.0"LG)
31	030340	1	HOSE 1/4 ID SAE 30R7 (22"LG)
32	042574	1 (REF)	ADAPTOR 1/8NPTF TO 1/8BSPT
33	028414	1 (REF)	BARBED STR 1/8NPT X 1/4
34	040173	2	CLAMP HOSE #5.5 .62-.62
35	0F2119	1	O-RING 45.63 ID X 2.62 WIDTH

NOTES:

1. REGULATOR (I/N 3) AS SHOWN IN ILLUSTRATION IS SET UP FOR NATURAL GAS APPLICATION.
2. TO CONFIGURE REGULATOR FOR LP VAPOR, SWITCH HOSE BARB, HOSE CLAMP (I/N 13) AND HOSE (I/N 14) FROM "OUT-1" TO "OUT-2". REPLACE PIPE PLUG FROM "OUT-2" TO "OUT-1". USE PIPE SEALANT ON HOSE BARB AND PIPE PLUG. MAKE SURE TO KEEP PORTS FREE FROM DEBRIS DURING RECONFIGURATION PROCESS.

3*. FOR LP VAPOR APPLICATION SUBSTITUE LPG FUEL INLET DECAL P/N 050280 FOR NG FUEL INLET DECAL P/N 050279 (ITEM17).

4 . WHEN SWITCHING FUEL TYPES, THE PROPER DIP SWITCH SITTINGS MUST BE MADE TO THE CONTROL PANEL. SEE OWNERS MANUAL, FUEL SECTION FOR MORE DETAILS.



EXPLODED VIEW:
ENCLOSURE C2
DRAWING #: 0F9811

REVISION: G-7460-B
DATE: 3/10/06

EXPLODED VIEW: ENCLOSURE C2
DRAWING #: 0F9811
APPLICABLE TO:

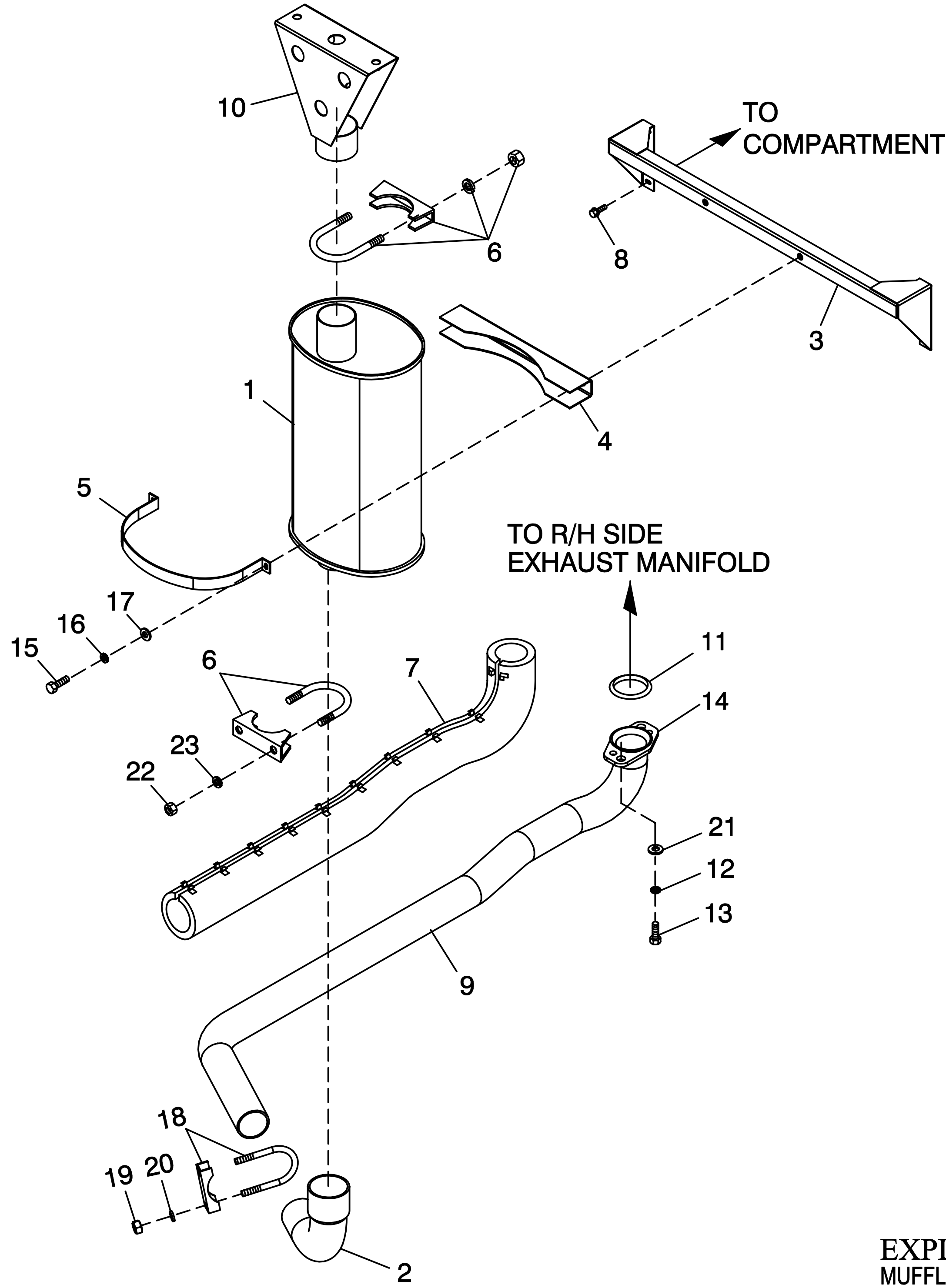
GROUP F

ITEM	PART #	QTY.	DESCRIPTION
1	0G0045 (XX)	1	REAR WRAP C2 CPL
2	0C2454	54	SCREW THF M6-1 X 16 N WA Z/JS
3	0F5849 (XX)	2	DOOR C2
4	087233	2	RIVET POP .1875 X .450 SS
5	0E3257	4	SCREW TH-FRM M6 W/CAP SHKPRF W
6	0F5852 (XX)	2	DISCHARGE DUCT LH & RH SIDE C2
7	0F9833 (XX)	2	FRONT CORNERS C2
8	0F5851 (XX)	1	DISCHARGE CENTER DUCT C2
9	049813	2	NUT HEX M6 X 1.0 G8 YEL CHR
10 *	077992	21	NUT HEX LOCK M6-1.0 SS NY INS
11	0F9835 (XX)	1	ROOF C2
12	0F2786	2	SLITTER C4
13	0F2785	1	SPLITTER LOWER C4
14	0F3364	1	SPLITTER STINGER C2
15	0F4880	2	SUPPORT SPLITTER LH C2
16	0F5049	2	TAB PULL
17	0C2634A	1	ASSEMBLY COVER ACCESS
18	022473	3	WASHER FLAT 1/4-M6 ZINC
19	022097	1	WASHER LOCK M6-1/4
20	022127	1	NUT HEX 1/4-20 STEEL
21	0F3072	16	INSULATION RETAINMENT HANGER
22	078115	48	WASHER SELF LOCKING DOME
23	0F4051	2	INSULATION DOOR C2
24	0F4051A	1	INSULATION ROOF TOP
25	0F5048D	2	VISE-ACTION LATCH SLOTTED CIR
26	0E5968	1	GASKET EXTRUDED TRIM (440.64” LG)
27	0F3760K	2	INSULATION SPLITTER
28	0F3760E	2	INSULATION SPLITTER
29	0F4051C	1	INSULATION DUCT
30	0F3890B	8	RETAINER INSULATION (820)
31	0F4051B	2	INSULATION DUCT SIDES
32	0F3890	4	RETAINER INSULATION (450)
33	0F3890A	3	RETAINER INSULATION (740)
34	0F3760L	1	INSULATION LOWER SPLITTER
35	042568	2	SCREW HHC M6-1.0 X 20 G8.8
36	0912970094	2	ASSY WIRE 14 AWG 34.8" GRN/YEL
37	022447	2	WASHER SHAKEPROOF INT 1/4
38	0G0266	1	INSULATION W/ REFL. HT. SHIELD
39	0F8869D	1	KEY VISE-ACTION LATCH SLOT CIR

OPTIONAL COMPARTMENT MATERIALS:
ALL P/N'S WITH AN (XX) SUFFIX INDICATE A MULTIPLE MATERIAL AND COLOR OPTION.
USE THE FOLLOWING LEGEND TO IDENTIFY THE CORRECT PART NUMBER:

PART NO.	MATERIAL	COLOR
0XXXXXSN	STEEL	TAN
0XXXXXAN	ALUMINUM	TAN
0XXXXXSG	STEEL	GRAY
0XXXXXAG	ALUMINUM	GRAY

* ALUMINUM ENCLOSURE NOTE: ALL ENCLOSURE PANELS THAT FASTEN TO THE BASE FRAME MUST BE SECURED USING ITEM 2 & 5 THREAD FORMING FASTENER AND ITEM 39 LOCK NUT. LOCK NUT IS TO BE INSTALLED AFTER THREAD FORMING FASTENER HAS PENETRATED THROUGH EXTRUSIONS IN ENCLOSURE PANELS. ALL ROOF PANELS ARE TO BE SECURED IN THE SAME MANNER.



REVISION: G-7647-A
DATE: 3/14/06

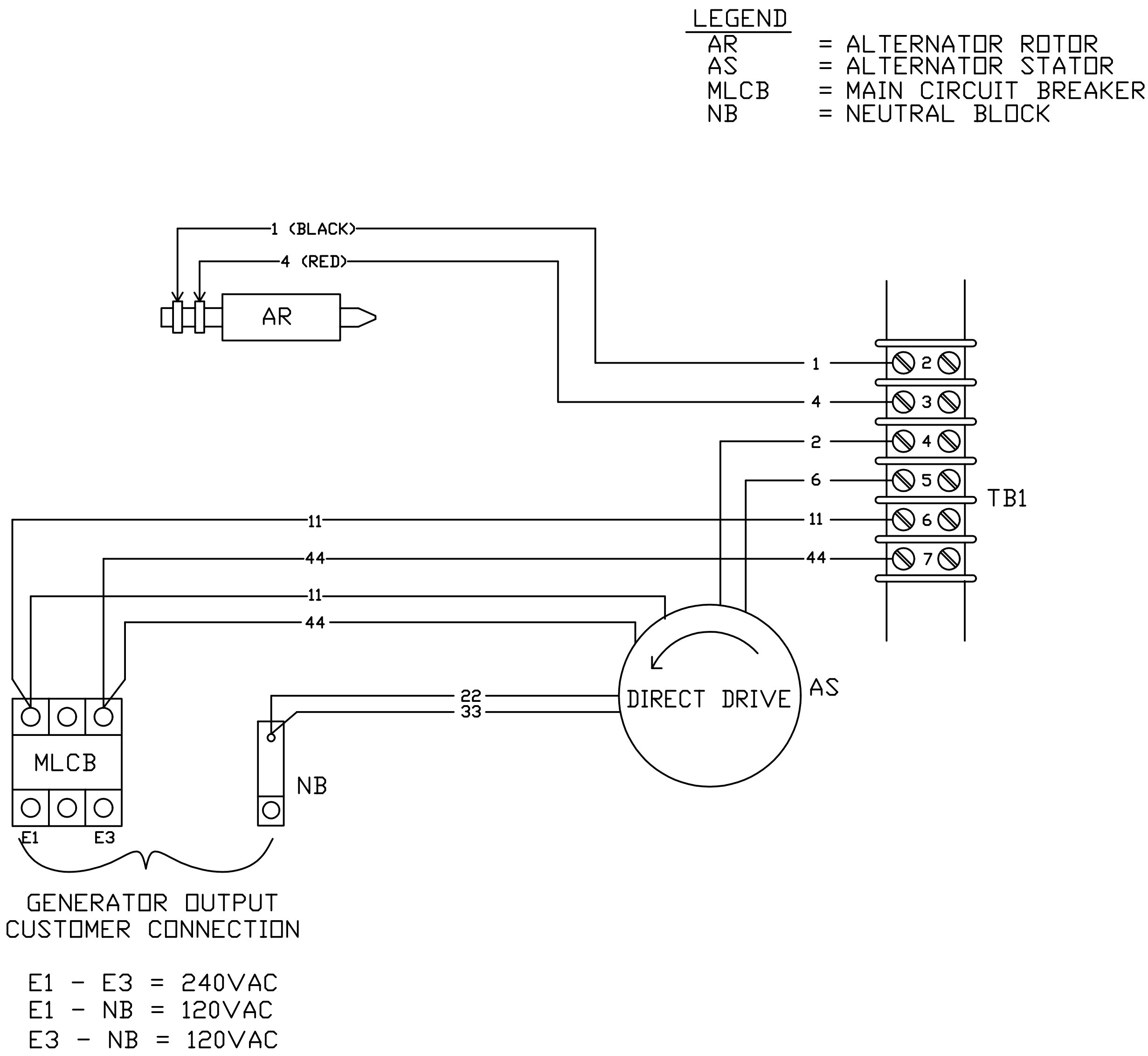
EXPLODED VIEW:
MUFFLER EXHAUST 2.4L 45KW C2
DRAWING #: 0F9812

EXPLODED VIEW: MUFFLER EXHAUST 2.4L 45KW C2
DRAWING #: 0F9812
APPLICABLE TO:

GROUP F

ITEM	PART #	QTY.	DESCRIPTION
1	0F9794	1	MUFFLER 7" X 9" X 18-1/2" 2" IN/OUT
2	0G0113	1	EXHAUST ELBOW 2 1/4 OD 2 1/2OD
3	0F9937	1	BRACKET MUFFLER
4	0F2830	1	MUFFLER BRACKET STIFFENER
5	0F2962	1	MUFFLER STRAP
6	080762	2	BOLT U 3/8-16 X 2.62
7	0E0170A	1	EXHAUST BLANKET 988MM (C2)
8	0C2454	4	SCREW THF M6-1 X 16 N WA Z/JS
9	0F9736	1	PIPE EXHAUST 2.4L G1
10	0G0007	1	DIFFUSER EXHAUST WELDMENT
11	044149	1	GASKET EXHAUST RING
12	085917	2	WASHER LOCK 3/8 SS
13	0D2611	2	SCREW HHC 3/8-16 X 1-3/4 SS
14	0E8816	1	EXHAUST FLANGE 2" PIPE
15	049721	2	SCREW HHC M6-1.0 X 35 G8.8 BLK
16	022097	2	WASHER LOCK M6-1/4
17	022473	2	WASHER FLAT 1/4-M6 ZINC
18	036797	1	BOLT U 5/16-18 X 2.25
19	022259	2	NUT HEX 5/16-18 STEEL
20	070006	2	WASHER LOCK M8 SS
21	088775	2	WASHER FLAT 3/8 SS
22	022241	4	NUT HEX 3/8-16 STEEL
23	085917	4	WASHER LOCK 3/8 SS

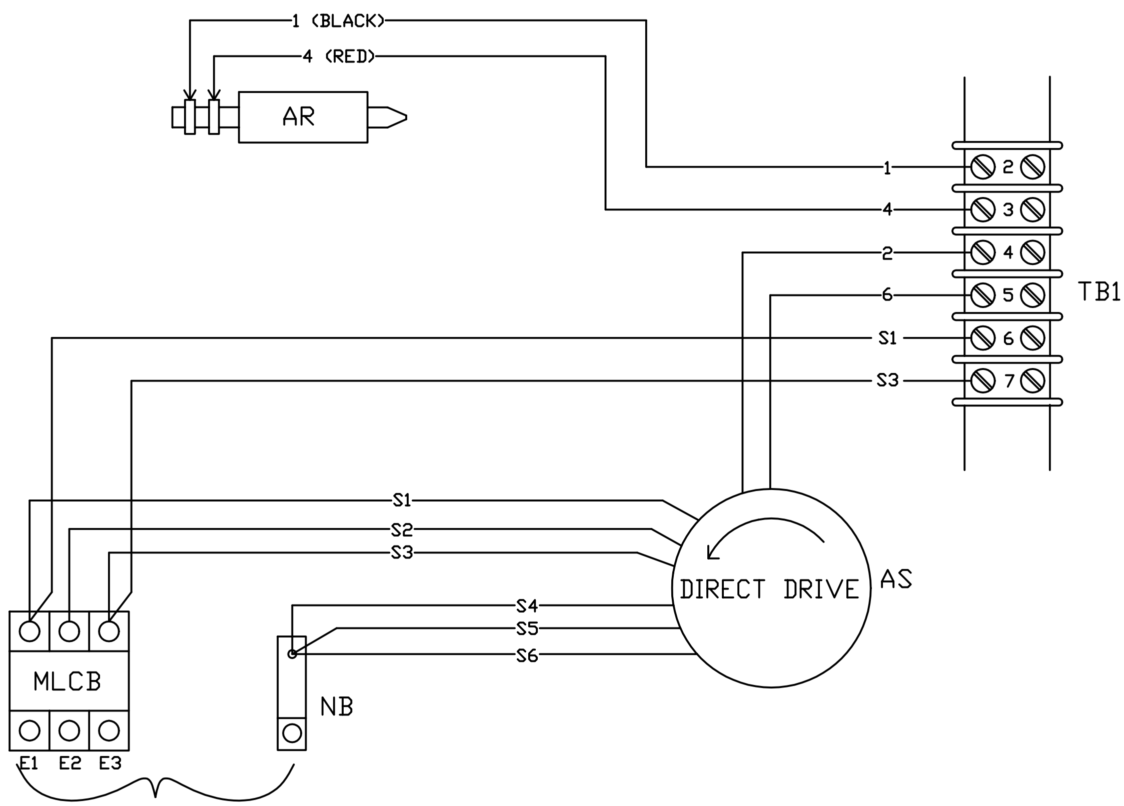
OPTION 1 - SINGLE PHASE, R-SERIES CONTROL PANEL, 240V



OPTION 2 - THREE PHASE, R-SERIES CONTROL PANEL, 6-WIRE 120/208V

LEGEND

AR = ALTERNATOR ROTOR
AS = ALTERNATOR STATOR
MLCB = MAIN CIRCUIT BREAKER
NB = NEUTRAL BLOCK



GENERATOR OUTPUT
CUSTOMER CONNECTION

E1 TO E2
E2 TO E3 } *208VAC
E1 TO E3

E1, E2, OR E3 TO NB = * 120VAC

*NOTE: THE 8th DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE
"G" = 120/208VAC

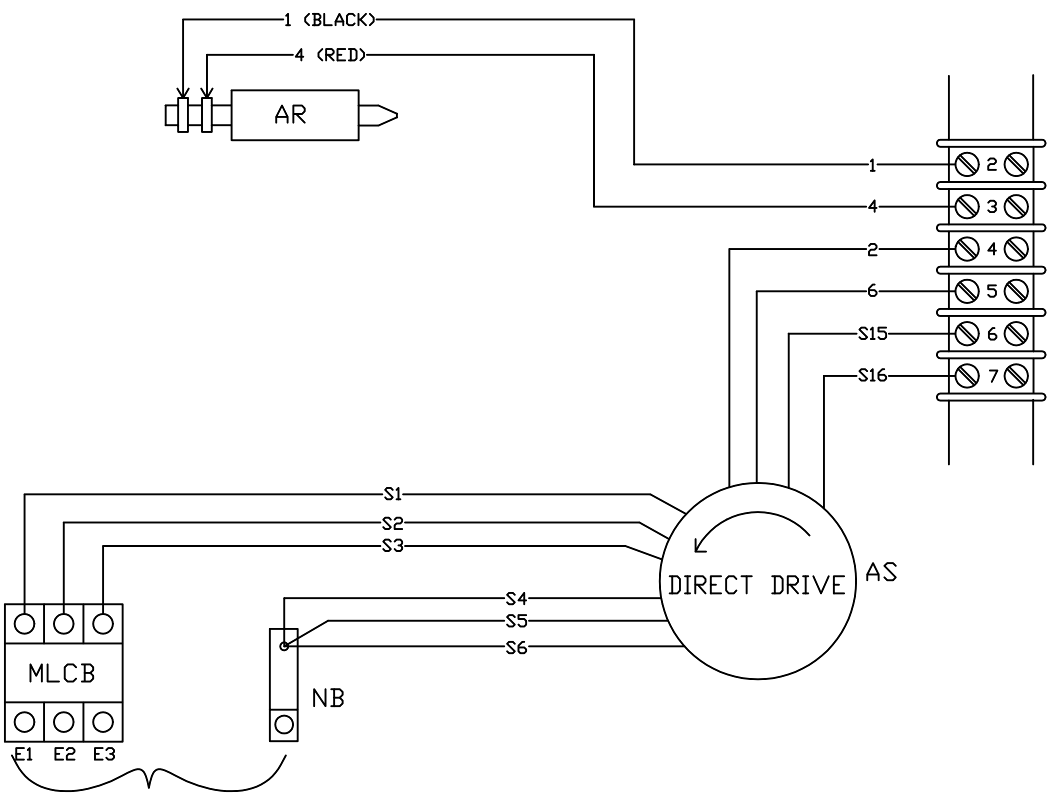
WIRING - DIAGRAM
R-SERIES CPL ALTERNATOR
DRAWING #: 0F6839

REVISION: G-7501-B
DATE: 02/22/06

OPTION 3 - THREE PHASE, R-SERIES CONTROL PANEL, 6-WIRE 277/480V

LEGEND

AR = ALTERNATOR ROTOR
AS = ALTERNATOR STATOR
MLCB = MAIN CIRCUIT BREAKER
NB = NEUTRAL BLOCK



GENERATOR OUTPUT
CUSTOMER CONNECTION

E1 TO E2
E2 TO E3 *480VAC
E1 TO E3

E1, E2, OR E3 TO NB = * 277VAC

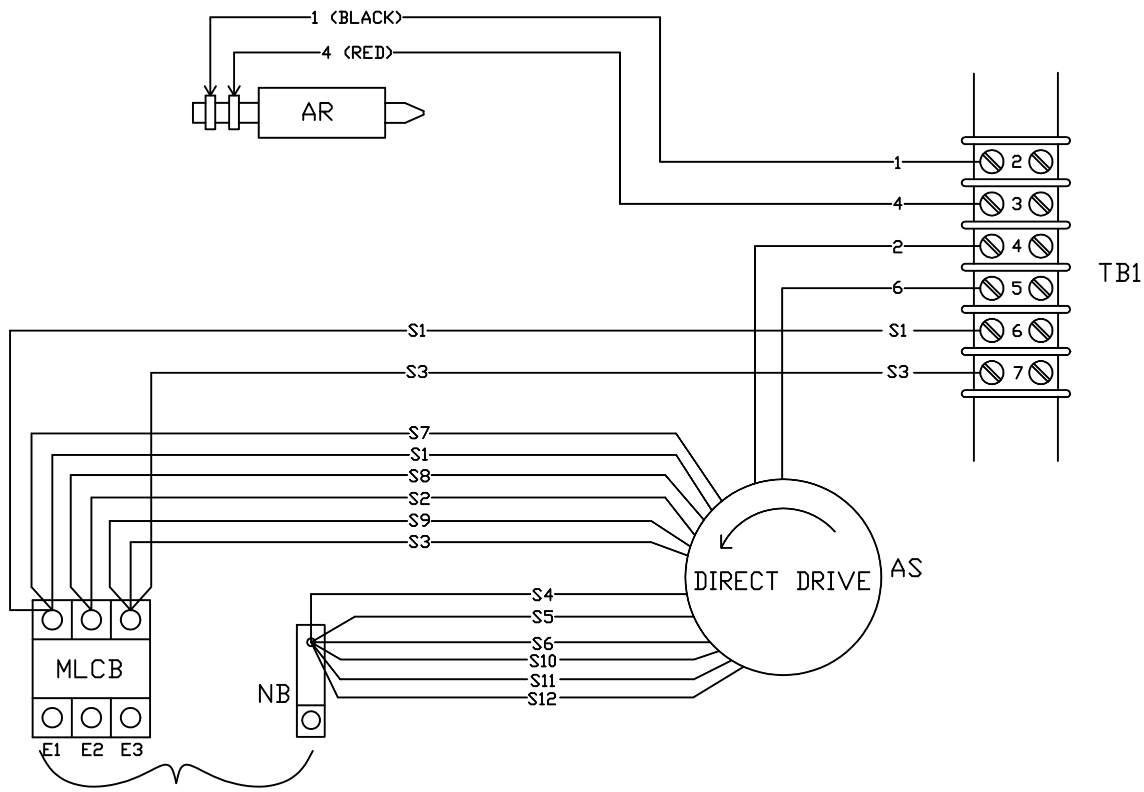
*NOTE: THE 8th DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE

"K" = 227/480VAC

OPTION 4 - THREE PHASE, R-SERIES CONTROL PANEL, 12-WIRE 120/208

LEGEND

AR = ALTERNATOR ROTOR
AS = ALTERNATOR STATOR
MLCB = MAIN CIRCUIT BREAKER
NB = NEUTRAL BLOCK



GENERATOR OUTPUT
CUSTOMER CONNECTION

E1 TO E2
E2 TO E3 } *208VAC
E1 TO E3

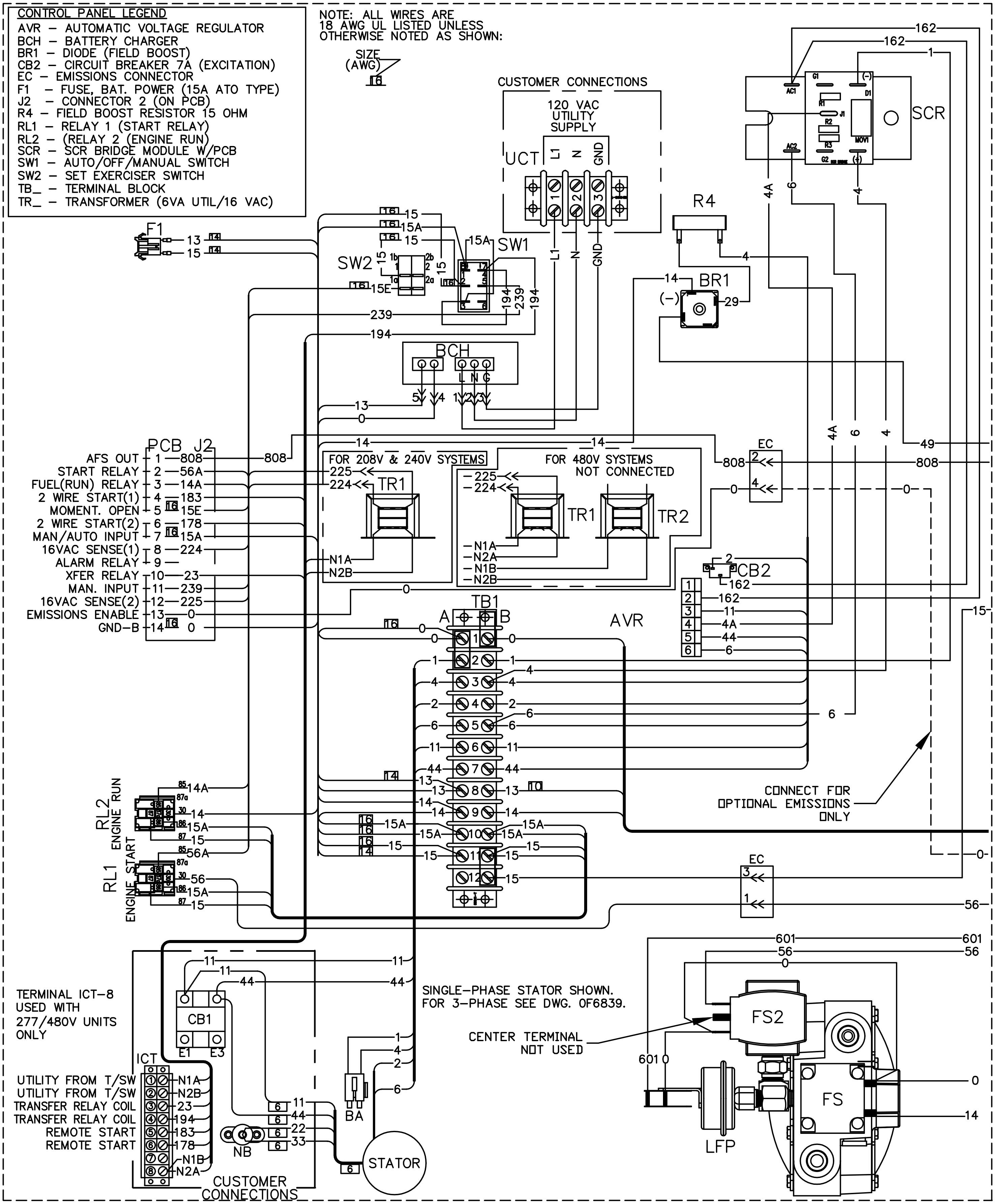
E1, E2, OR E3 TO NB = * 120VAC

*NOTE: THE 8th DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE

"G" = 120/208VAC

WIRING - DIAGRAM
R-SERIES CPL ALTERNATOR
DRAWING #: 0F6839

REVISION: G-7501-B
DATE: 02/22/06



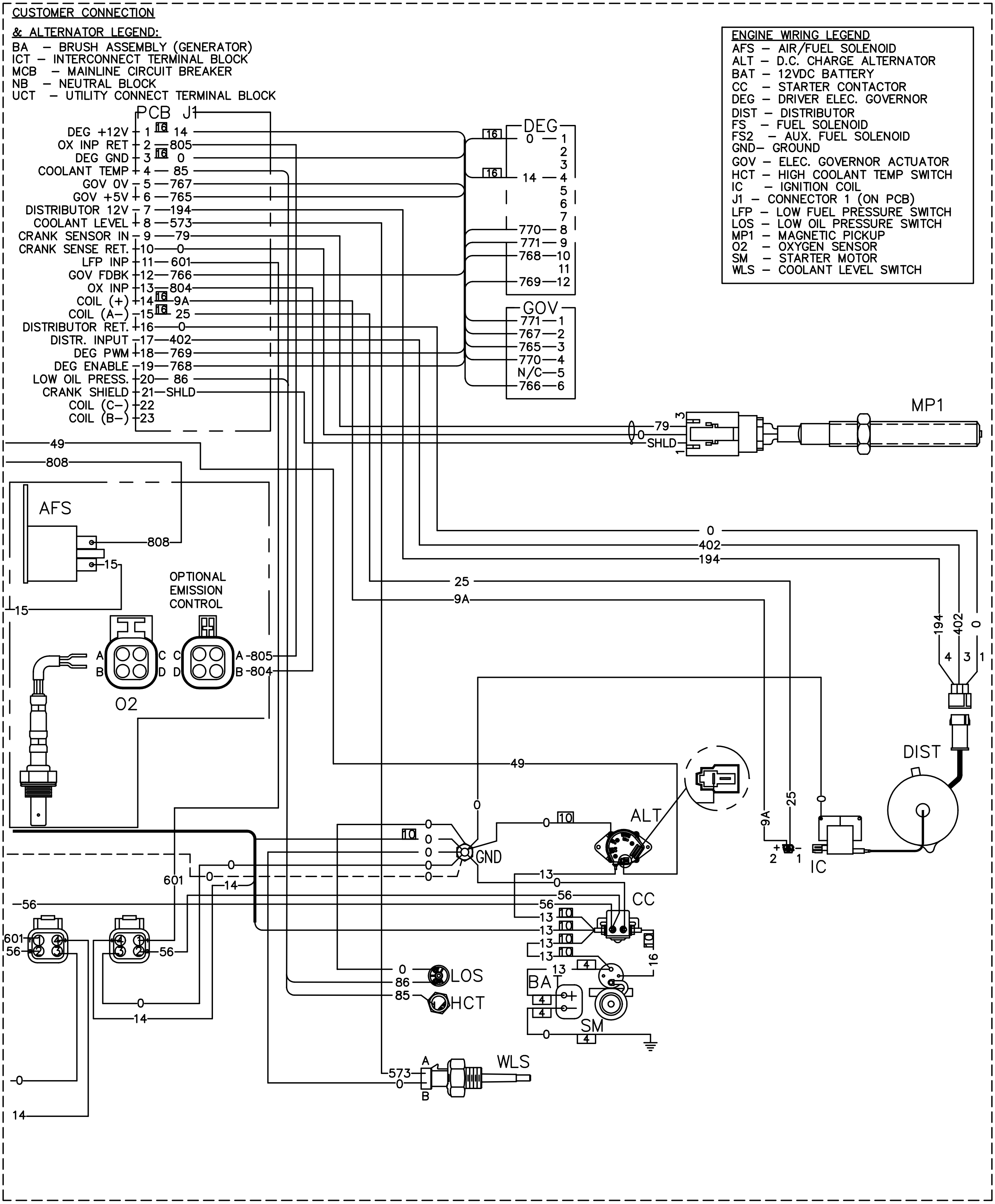
WIRING - DIAGRAM

2.4L 2 POLE

REVISION: *

DRAWING #: 0F9705

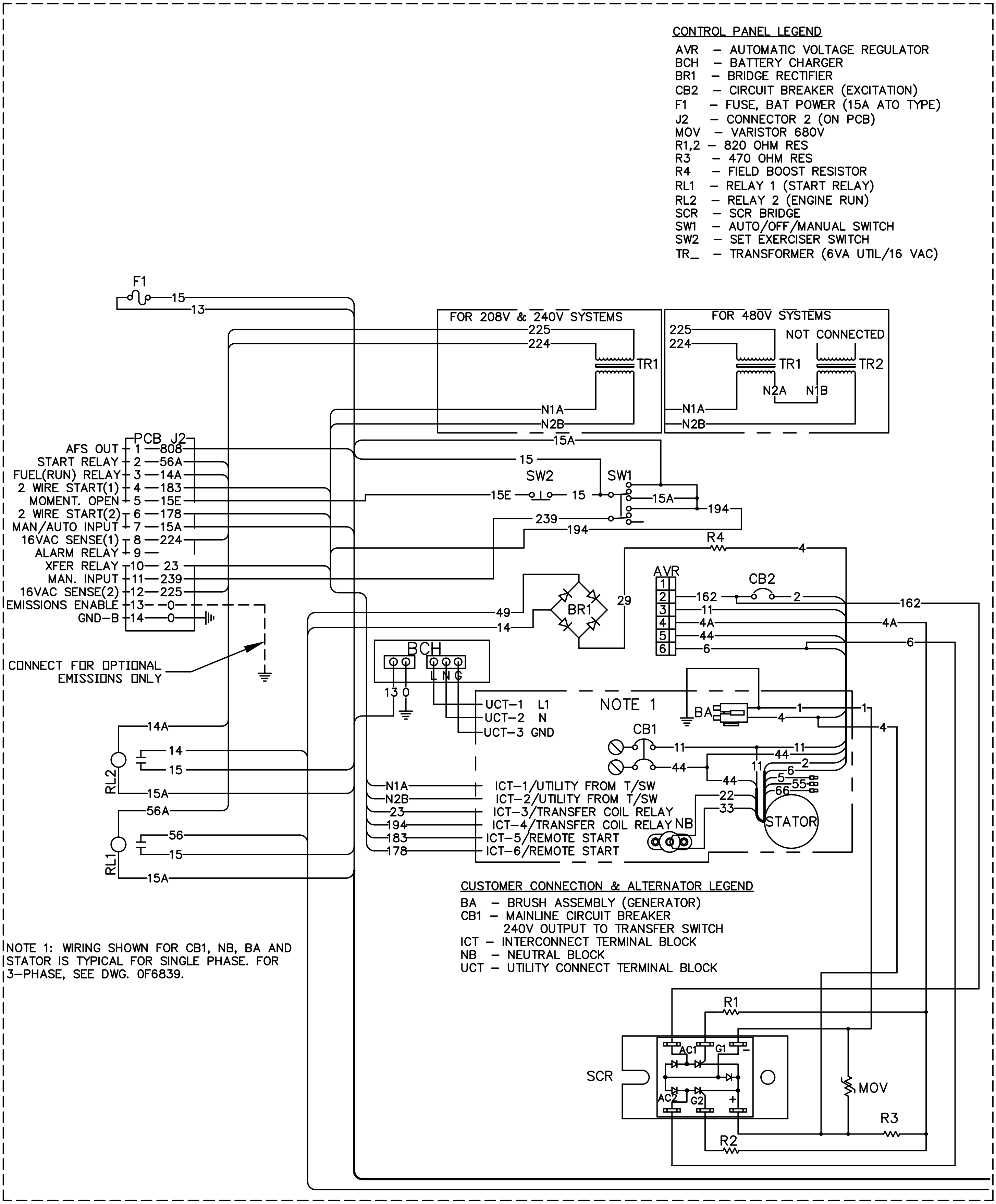
DATE: 12/01/05



WIRING - DIAGRAM

REVISION: * 2.4L 2 POLE

DATE: 12/01/05 DRAWING #: 0F9705



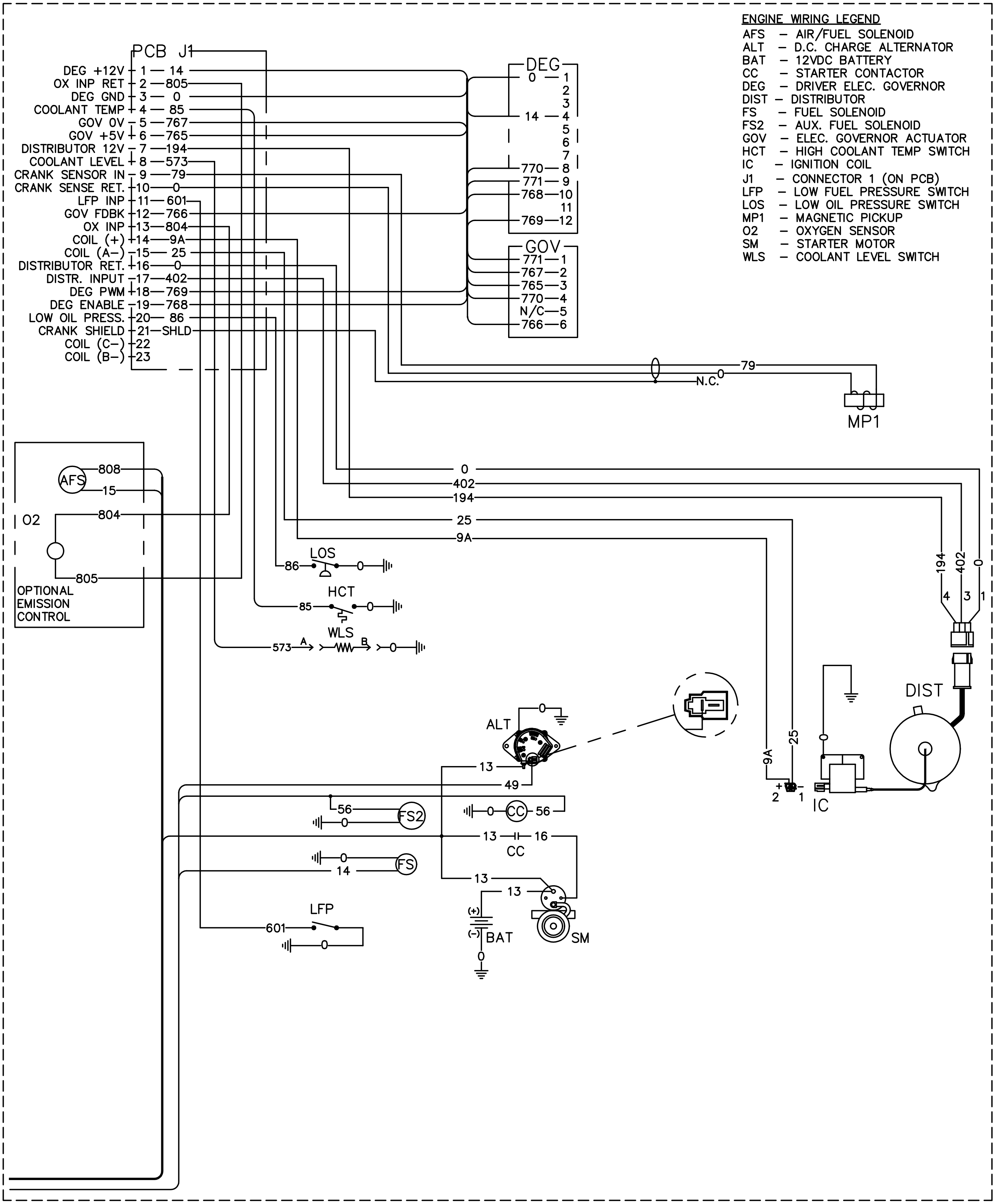
SCHEMATIC - DIAGRAM

2.4L 2 POLE

DRAWING #: 0G0118

REVISION: *

DATE: 01/09/06



SCHEMATIC - DIAGRAM

2.4L 2 POLE

REVISION: *

DATE: 01/09/06

DRAWING #: 0G0118

WEIGHT DATA
2.4L 35 & 45KW - 642KG (1414 LB)
WOODEN SHIPPING SKIDS INCREASE OVERALL WEIGHT - 42KG (98 LB)

NOTES:

1) MINIMUM RECOMMENDED CONCRETE PAD SIZE: 1460 (57.5") WIDE X 2560 (100.8") LONG. REFERENCE INSTALLATION GUIDE P/N 0F5298 FOR CONCRETE PAD REINFORCEMENT AND PAD DEPTH GUIDELINES.

2) GENERATOR MUST BE LOCATED A MINIMUM DISTANCE OF 5 FEET FROM A WALL OR FENCE. ALLOW A 5 FOOT MINIMUM PERIMETER OF OPEN SPACE AROUND THE ENTIRE GENERATOR. REFERENCE INSTALLATION GUIDE P/N 0F5298 FOR OUTDOOR ROOF MOUNTED APPLICATIONS.

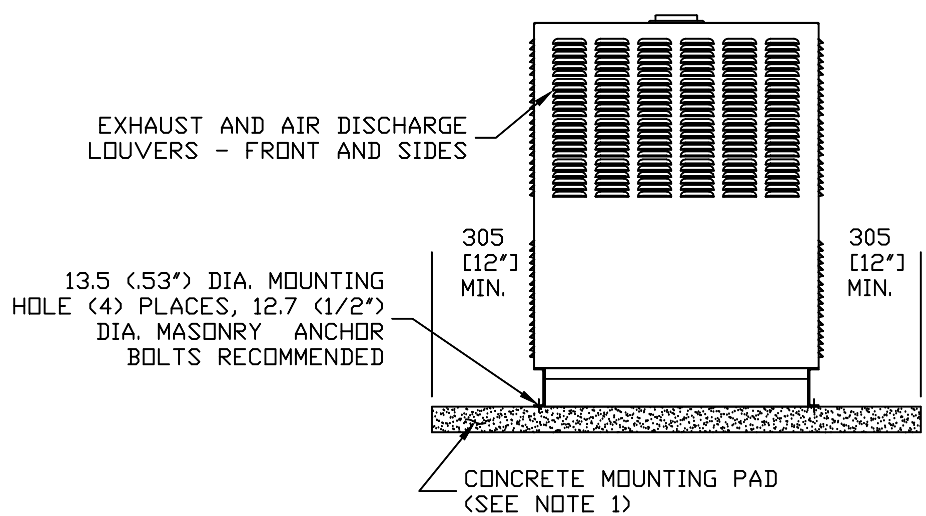
3) CIRCUIT BREAKER INFORMATION:
SEE SPECIFICATION SHEET WITHIN OWNERS MANUAL

4) INSIDE STUB-UP AREA FOR AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, BATTERY CHARGER 120 VOLT AC (.5 AMP MAX.) CONNECTION, AND ACCESS TO TRANSFER SWITCH CONTROL WIRES. REMOVE FRONT COVER FOR ACCESS.

4A) FIELD CUT HOLE IS ONLY REQUIRED FOR MOUNTING OF GENERATOR ON AN EXISTING PAD.

5) REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.

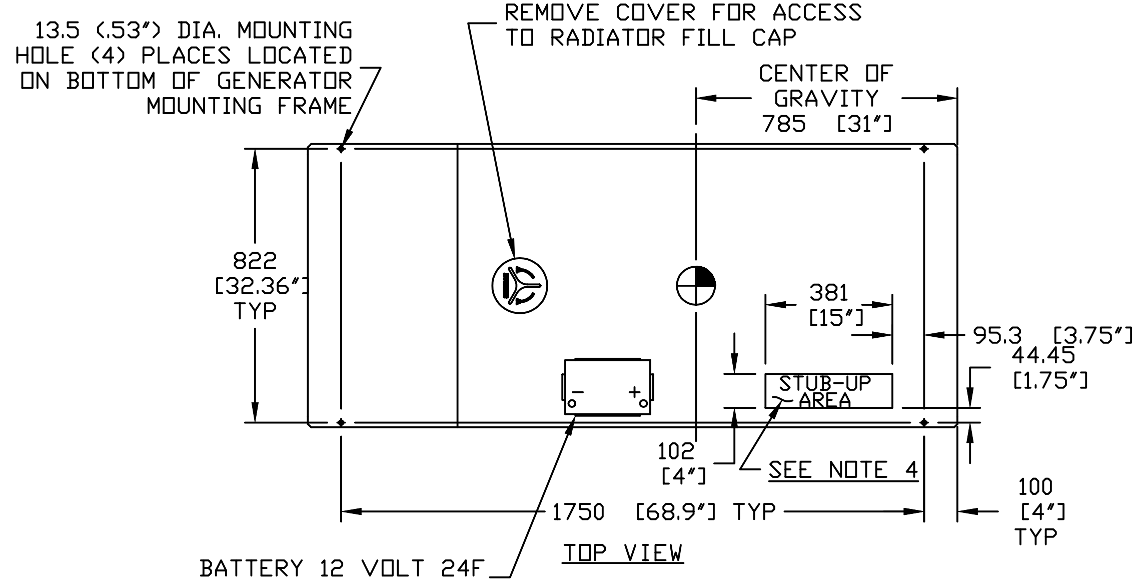
6) REMOVE EITHER LEFT OR RIGHT HAND SIDE PANEL TO ACCESS EXHAUST MUFFLER AND FAN BELT.



FRONT VIEW

EXPLODED VIEW:
INSTALLATION CPL 2.4L 35KW & 45KW
DRAWING #: 0G0325

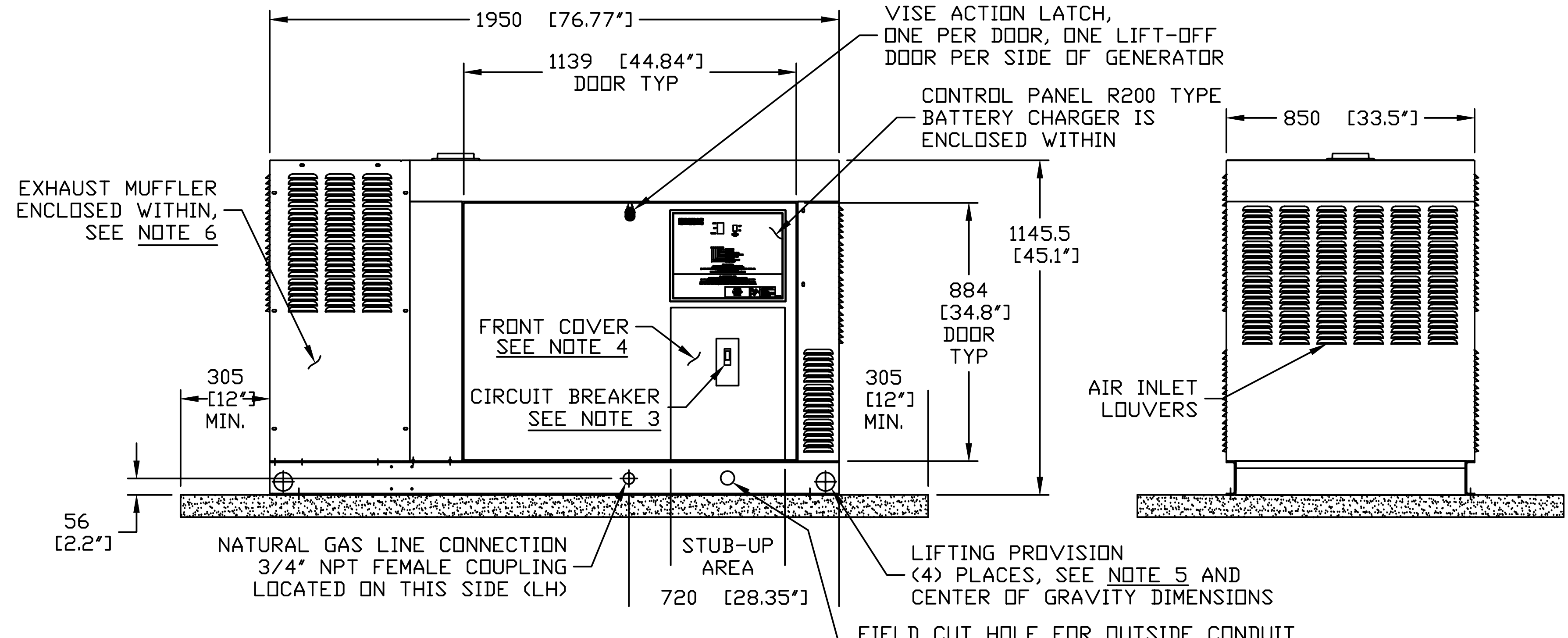
REVISION:
DATE: 1/19/06



TOP VIEW

SERVICE ITEM ACCESSIBILITY CHART	
SERVICE ITEM	2. 4L
OIL FILL CAP	EITHER DOOR
OIL DIP STICK	THRU RIGHT DOOR
OIL FILTER	THRU RIGHT DOOR
OIL DRAIN HOSE	THRU RIGHT DOOR
RADIATOR DRAIN HOSE	THRU LEFT DOOR
AIR CLEANER ELEMENT	EITHER DOOR
SPARK PLUGS	THRU RIGHT DOOR
MUFFLER	SEE NOTE 6
FAN BELT	SEE NOTE 6
BATTERY	THRU LEFT DOOR

REFERENCE OWNERS MANUAL FOR PERIODIC REPLACEMENT PART LISTINGS

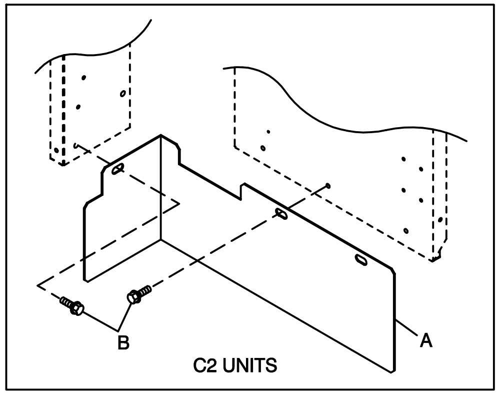


LEFT SIDE VIEW

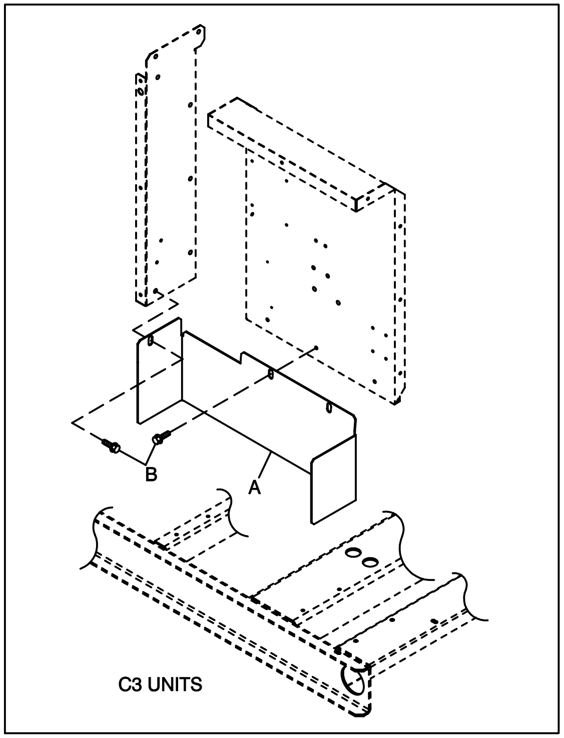
EXPLODED VIEW:
INSTALLATION CPL 2.4L 35KW & 45KW
DRAWING #: 0G0325

REVISION:
DATE: 1/19/06

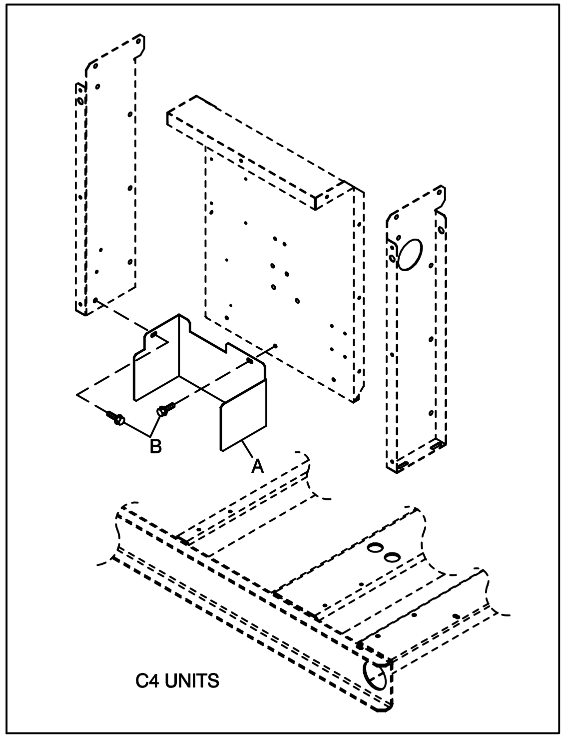
1.)



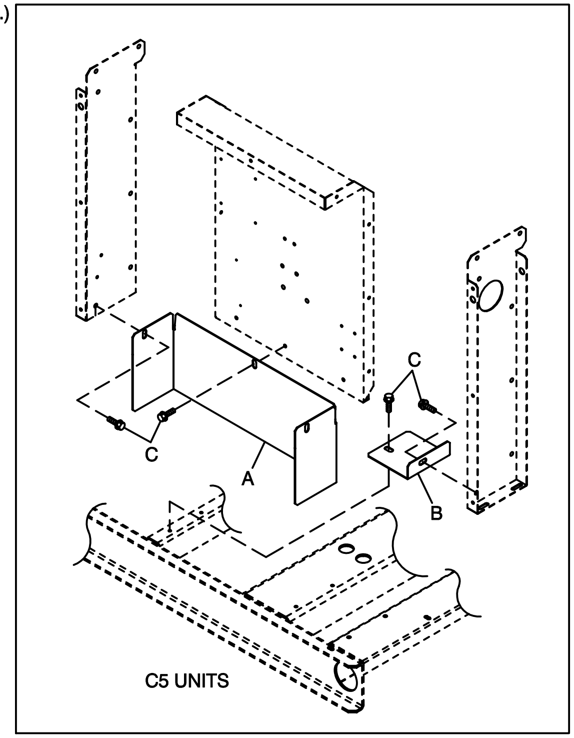
2.)



3.)



4.)



EXPLODED VIEW:
C4 CB CONNECTION BOX SHIELDING C2/C4
DRAWING #: 0G0258D

DATE: 1/18/06

EXPLODED VIEW: C4 CB CONNECTION BOX SHIELDING C2/C4
DRAWING #: 0G0258D
APPLICABLE TO:

GROUP H

ITEM	PART #	QTY.	DESCRIPTION
1.)	C2 UNITS		
A	0F9832	1	SHIELD CONN BOX C2
	0F9832GGS0R	1	SHIELD CONTROL STAND C2
B	0C2454	3	SCREW THF M6-1 X 16 N WA Z/JS
2.)	C3 UNITS		
A	0F9832B	1	SHIELD CONTROL STAND C3
	0F9832KGS0R	1	SHIELD CONTROL STAND C3
B	0C2454	3	SCREW THF M6-1 X 16 N WA Z/JS
3.)	C4 UNITS		
A	0F9832A	1	SHIELD CONTROL STAND C4
B	0C2454	2	SCREW THF M6-1 X 16 N WA Z/JS
4.)	C5 UNITS		
A	0F9832C	1	SHIELD CONTROL STAND C5
	0F9832D	1	SHIELD CONTROL STAND C5
	0F9832EGS0R	1	SHIELD CONTROL STAND C5
	0F9832HGS0R	1	SHIELD CONTROL STAND C5
	0F9832JGS0R	1	SHIELD CONTROL STAND C5
B	0F9832FGS0R	1	SHIELD CONTROL STAND C5
C	0C2464	3	SCREW THF M6-1 X 16 N WA Z/JS

Standby Generator Sets
Warranty

GENERAC POWER SYSTEMS STANDARD LIMITED WARRANTY FOR HOME STANDBY/LIGHT COMMERCIAL PRODUCT 45kW AND BELOW

For a period of two (2) years from the date of sale, or start-up by Authorized/Certified Generac Power Systems Dealer, or branch thereof, Generac Power Systems, Inc. will, at its option, repair or replace any part(s) which, upon examination, inspection, and testing by Generac Power Systems or an Authorized/Certified Generac Power Systems Dealer, or branch thereof, is found to be defective under normal use and service, in accordance with the warranty schedule set forth below. Any equipment that the purchaser/owner claims to be defective must be examined by the nearest Authorized/Certified Generac Power Systems Dealer, or branch thereof. This warranty applies only to Generac Power Systems Generators used in "Standby" applications, as Generac Power Systems, Inc. has defined Standby, provided said generator has been properly installed and inspected on-site by appropriate personnel. Scheduled maintenance, as outlined by the generator owner's manual, is highly recommended. This should be performed by an Authorized/Certified Generac Power Systems Dealer, or branch thereof. This will verify service has been performed on the unit throughout the warranty period.

WARRANTY SCHEDULE

YEARS ONE and TWO — Limited comprehensive coverage on mileage, labor, and parts listed.
• - ALL COMPONENTS
*Start-up and/or On-line Registration, or Registration Card, along with Proof of Purchase, must be performed and/or sent in.

Guidelines:

- Any and all warranty repairs and/or concerns, must be performed and/or addressed by an Authorized/Certified Generac Power Systems Dealer, or branch thereof.
- A Generac Power Systems, Inc. Transfer Switch is highly recommended to be used in conjunction with the genset. If a Non - Generac Power Systems, Inc. Transfer Switch is substituted for use and directly causes damage to the genset, no warranty coverage shall apply.
- All warranty expense allowances are subject to the conditions defined in Generac Power Systems Warranty, Policies, and Procedures Flat Rate Manual.
- Units that have been resold are not covered under the Generac Power Systems Warranty, as this Warranty is not transferable.
- Unit enclosure is only covered against rust or corrosion the first year of the warranty provision.
- Use of Non-Generac replacement part(s) will void the warranty in its entirety.
- Engine coolant heaters (block-heaters), heater controls and circulating pumps are only covered during the first year of the warranty provision (If applicable).

THIS WARRANTY SHALL NOT APPLY TO THE FOLLOWING:

1. Any unit built/manufactured prior to January 1, 2005.
2. Costs of normal maintenance (i.e. tune-ups, associated part(s), adjustments, loose/leaking clamps, installation and start-up).
3. Any failure caused by contaminated fuels, oils, coolants/antifreeze or lack of proper fuels, oils or coolants/antifreeze.
4. Units sold, rated or used for "Prime Power", "Trailer Mounted" or "Rental Unit" applications as Generac Power Systems have defined Prime Power, Trailer Mounted or Rental Unit. Contact a Generac Power Systems Distributor for Prime Power, Trailer Mounted or Rental Unit definition and warranty.
5. Units used for prime power in place of existing utility power where utility is present or in place of utility power where utility power service does not normally exist.
6. Failures caused by any external cause or act of God such as, but not limited to, collision, fire, theft, freezing, vandalism, riot or wars, lightning, earthquake, windstorm, hail, volcanic eruption, water or flood, tornado, hurricane, terrorist acts or nuclear holocaust.
7. Products that are modified or altered in a manner not authorized by Generac Power Systems in writing.
8. Failures due, but not limited to, normal wear and tear, accident, misuse, abuse, negligence, or improper installation or sizing.
9. Any incidental, consequential or indirect damages caused by defects in materials or workmanship, or any delay in repair or replacement of the defective part(s).
10. Failure due to misapplication, misrepresentation, or bi-fuel conversion.
11. Telephone, facsimile, cell phone, satellite, internet, or any other communication expenses.
12. Rental equipment used while warranty repairs are being performed (i.e. rental generators, cranes, etc.).
13. Overtime, holiday, or emergency labor.
14. Planes, ferries, railroad, busses, helicopters, snowmobiles, snow-cats, off-road vehicle or any other mode of transportation deemed abnormal.
15. Any and all expenses incurred investigating performance complaints unless defective Generac materials and/or workmanship were the direct cause of the problem.
16. Starting batteries, fuses, light bulbs, engine fluids, and overnight freight cost for replacement part(s).

THIS WARRANTY IS IN PLACE OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, SPECIFICALLY, GENERAC POWER SYSTEMS MAKES NO OTHER WARRANTIES AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to purchaser/owner.

GENERAC POWER SYSTEMS ONLY LIABILITY SHALL BE THE REPAIR OR REPLACEMENT OF PART(S) AS STATED ABOVE. IN NO EVENT SHALL GENERAC POWER SYSTEMS BE LIABLE FOR ANY INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF SUCH DAMAGES ARE A DIRECT RESULT OF GENERAC POWER SYSTEMS, INC. NEGLIGENCE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to purchaser/owner. Purchaser/owner agrees to make no claims against Generac Power Systems, Inc. based on negligence. This warranty gives purchaser/owner specific legal rights. Purchaser/owner also may have other rights that vary from state to state.

Generac Power Systems, Inc. · P.O. Box 8 · Waukesha, WI 53187
Ph: (262) 544-4811 · Fax: (262) 544-4851

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